RADIO AIDS
TO
MARINE NAVIGATION
(Pacific and Western Arctic)

CANADIAN COAST GUARD

Marine Communications and Traffic Services

Annual Edition 2001

IMPORTANT

This publication is revised on a monthly basis (when required) through Notices to Mariners Part III

Fisheries and Oceans Canada
Pêches et Océans Canada

Canada

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IMPORTANT: THIS PUBLICATION IS REVISED MONTHLY (WHEN REQUIRED) FROM THE NOTICES TO MARINERS. http://www.notmar.com/eng/services/notmar/sec3index.html

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PLEASE FORWARD YOUR COMMENTS BY ONE OF THE FOLLOWING METHODS:

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Catalogue No. T51-5/2001E
ISBN 0-660-18369-2
Ottawa, Canada

105-00705/

❖**THIS ISSUE HAS BEEN REVISED TO JANUARY 31, 2001 AND CANCELS AND REPLACES ALL PREVIOUS ISSUES.**

❖Any enquiries as to the contents of this publication or reports of errors or omissions should be directed to the nearest regional office as indicated at the end of Part 1 of this publication.

❖The information in this volume is grouped in six parts:

1	**Foreword (includes Advance Notices, Legend, Frequencies listing and MCTS telephone and address information)**
2	**Pacific Coast**
3	**Vessel Traffic Services**
4	**General**
5	**Environment Canada**
6	**Loran-C Navigation System**

❖Part 1 provides mariners with advanced information on proposed changes to the Fisheries and Oceans Canada, Canadian Coast Guard, Marine Communications and Traffic Services (MCTS) Centres. In addition, it includes the Canadian Maritime Mobile Safety and Public Correspondence Communications Frequencies, a Legend for Centre listings and the telephone/facsimile/telex directory of MCTS Centres along with the Regional office addresses.

❖Part 2 list, in tabular form, detailed operational information about individual facilities in each of the areas covered. Marine Communications and Traffic Services Centres providing communications & special services continuous year round except as noted

❖Part 3 provides consolidated information concerning Vessel Traffic Services.

Part 4 gives descriptions of the various services available, together with general observations or directions for their use. Also included, for the benefit of vessels equipped with radiotelephone but not carrying radio operators, are radiotelephone procedures. The proper use of radio frequencies and procedures is essential to minimize congestion and delays on the channels available for communication.

Part 5 provides all relative information concerning Environment Canada's services in marine meteorology that are delivered by the Canadian Coast Guard.

Part 6 provides information, figures, tables and chartlets on the Loran-C Navigation System.

The main purpose of this publication is to present information in a convenient form on radio communications and radio navigational aids services provided in Canada by the Fisheries and Oceans Canada. Also included are radio facilities of other government agencies that contribute to the safety of ships in Canadian waters.

❖It is published in two volumes, one for the Atlantic Coast, Gulf and St. Lawrence River to Montreal, Eastern Arctic (including Hudson Bay and Strait) and the Great Lakes (including St. Lawrence River to Montreal), the other for the Pacific Coast, Western Arctic and the Athabasca-Mackenzie Watershed area. Both editions are available in the French language.

Issues are published in April each year. Amendments to the publication, if necessary between issues, will be made known by radio broadcasts (Notices to Shipping) and/or in section III of the monthly edition of "Notices to Mariners".

Every ship station fitted on a Canadian ship, and on a non-Canadian ship engaged in the coasting trade of Canada, pursuant to the Ship Station Technical Regulations shall carry the current applicable edition of Radio Aids to Marine Navigation.

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RADIO AIDS TO MARINE NAVIGATION
FROM MONTHLY NOTICES TO MARINERS (PART III)

N to M No.	Inserted by:	N to M No.	Inserted by:	N to M No.	Inserted by:	N to M No.	Inserted by:	N to M No.	Inserted by:

PART 1

FOREWORD

❖ *ADVANCE NOTICES*

In order that mariners may have advance knowledge of proposed changes to existing facilities to be provided, additions, deletions and changes to such facilities under the jurisdiction of the Fisheries and Oceans Canada are listed hereunder. Effective dates of changes and dates for the commissioning of new facilities are, however, extremely hard to forecast owing to difficulties in obtaining materials and subject to provision of necessary funds. Every effort will be made to amend dates as far in advance as possible. In every case of changes to facilities and commissioning new facilities, an appropriate Notice to Mariners will be issued.

1) *Global Maritime Distress and Safety System (GMDSS)*

Implementation of VHF/DSC on the Pacific Coast

The Canadian Coast Guard has installed VHF/Digital Selective Calling (DSC) equipment at Tofino and Victoria MCTS Centres. Tofino controls installations at Holberg, Eliza Dome, and Mount Ozzard. Victoria controls installations at Mount Helmcken, Mount Parke, and Bowen Island. Further VHF/DSC installations at Prince Rupert and Comox MCTS Centres are planned for future years. Canadian Coast Guard MCTS Centres will continue to monitor CH 16 for distress, urgency, safety and calling purposes until at least February 1st, 2005.

Implementation of HF/DSC in the Canadian Arctic

The Canadian Coast Guard, Central and Arctic Region, will implement a High Frequency Digital Selective Calling (HF/DSC) system at the Iqaluit MCTS Centre with a remote receiver site also located at Resolute in order to provide continuous HF/DSC alerting, voice communications and narrow-band direct printing broadcasting capabilities on a number of selected frequencies in the 4, 6, 8, 12 and 16 MHz radio bands that will cover the Arctic waters above 70° N as the final element of the implementation of the Global Maritime Distress and Safety System (GMDSS) in the Canadian Arctic. This system is planned to be operational as of July 1st, 2001.

The following type of radio communications mode is the minimum complement of services that can be offered to meet GMDSS Sea Area A-4 guidelines:

Frequency Band	DSC Alerting Frequency	R/T distress/safety traffic frequency	NBDP frequency
HF 4	4207.5 kHz	4125 kHz	4177.5 kHz
HF 6	6312 kHz	6215 kHz	6268 kHz
HF 8	8414.5 kHz	8291 kHz	8376.5 kHz
HF12	12,577 kHz	12,290 kHz	12520 kHz
HF16	16,804.5 kHz	16,420 kHz	16695 kHz

GMDSS service availability has been noted on the individual MCTS Centre listings, Part 2.

2) *The Commercial Public Correspondence Service*

The cessation of the Canadian Coast Guard commercial public correspondence service has commenced as of December 31, 1999, in **selected areas**, based upon the demand for the service and the availability of alternate service delivery methods.

IT IS EMPHASIZED THAT THE CANADIAN COAST GUARD WILL CONTINUE TO PROVIDE DISTRESS AND SAFETY SERVICES

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3) ***Loran-C Navigation System***

(a) **Notice of Future Changes**
The USCG announced in the 1994 edition of the Federal Radio Navigation Plan, that given the expected decrease in use of Loran-C in the U.S., support for continued operation of this navigation system will end in the near future. The Canadian Coast Guard is currently evaluating the impact of this decision.

4) ***Notices to Mariners – Marine Communications and Traffic Services***

Beginning in 2001, the information contained in Notices to Mariners # 24, 25, 26 & 27 will be published **only** in the Annual Edition of RAMN, Part 3 and will no longer be listed in the Annual Edition of Notices to Mariners.

5) ***Mackenzie River and Athabasca-Mackenzie Watershed Area***

(a) **Marine Safety and Advisory Procedures for the Mackenzie River**
The above noted subject has been relocated from Part 3 of the Atlantic, St. Lawrence, Great Lakes, Lake Winnipeg and Eastern Arctic edition to Part 3 of the Pacific and Western Arctic edition.

(b) **Use of 5803 kHz for the Athabasca-Mackenzie Watershed Area**
The above noted subject has been relocated from Part 2 of this edition to Part 4 under Distress, Urgency, Safety Communications.

6) ***Ship Station (Radio) Regulations, 1999 (Transport Canada)***

The new requirements for the above noted subject have been summarized in Part 4.

CANADIAN MARITIME MOBILE SAFETY AND PUBLIC CORRESPONDENCE COMMUNICATION FREQUENCIES

The frequencies listed below are those in general use by ships in Canadian waters for intership communications and for ship/shore communications with Marine Communications and Traffic Services (MCTS) Centres operated by the Canadian Coast Guard.

Part 2 of this publication contains individual listings for MCTS Centres operated by the Canadian Coast Guard, giving details of the communication and special services provided to ships.

Frequencies		Channel	Type of Emission	❖ Purpose and Remarks
Ship kHz	Coast kHz			
	490		F1B	NAVTEX Service
	518		F1B	NAVTEX Service
2040			J3E	Intership (vessels other than fishing and towing)
2054	2054		J3E	Public correspondence
2182	2182		H3E/J3E	International distress and calling.
2187.5	2187.5		G2B	Digital Selective Calling, distress, safety & calling
2318			J3E	Intership (fishing vessels).
2340	2458		J3E	Public correspondence
2366			J3E	Intership (other than fishing vessels).
2638			J3E	Intership (shared with U.S. vessels)
2738	2530		J3E	Intership (shared with U.S. vessels)
4071	4363	403	J3E	Public correspondence
4125	4125		J3E	International distress and calling
5803	5803		J3E	Distress & calling (Athabaska & Mackenzie Inland waterways)
6267	6318.5		F1B	Radioteletype

Frequencies		Channel	Type of Emission	❖ Purpose and Remarks
Ship kHz	Coast kHz			
156.25	156.25	05A	F3E	Vessel Traffic Services
156.3		06	F3E	Intership safety
156.525	156.525	70	G2B	Digital Selective Calling, distress, safety & calling
156.55	156.55	11	F3E	Vessel Traffic Services and Pilotage
156.575	156.575	71	F3E	Vessel Traffic Services
156.6	156.6	12	F3E	Vessel Traffic Services /Ports Operations/Pilotage
156.65	156.65	13	F3E	Bridge to bridge navigational traffic
156.7	156.7	14	F3E	Vessel Traffic Services /Ports Operations/Pilotage
156.725	156.725	74	F3E	Vessel Traffic Services
156.8	156.8	16	F3E	International distress, safety and calling
	161.65	21B	F3E	Weather & Notices to Shipping broadcasts
156.925	156.925	78A	F3E	F/V Interships
157.100	157.100	22A	F3E	Ship and Canadian Coast Guard liaison
157.3	161.9	26	F3E	Public Correspondence
157.225	161.825	84	F3E	Public Correspondence
	162.400	WX2	F3E	Weather & Notices to Shipping broadcasts
	162.475	WX3	F3E	Weather & Notices to Shipping broadcasts
	162.55	WX1	F3E	Weather & Notices to Shipping broadcasts

Notes Reference VHF

(a) "A" following a channel number means Simplex Operation on the ship station transmitting frequency.

(b) "B" following a channel number means ship stations receive only the higher coast station transmitting frequency.

GENERAL INFORMATION ON MCTS CENTRE LISTINGS

(1) Frequencies enclosed in brackets are in MHz. Other frequencies are in kHz.

(2) **Receiving frequencies printed in bold type are continuously monitored by MCTS Centres.**

(3) The extent of the numbered areas mentioned in the remarks column of centres providing communications and special services are shown on the Marine Weather Forecasts maps, and are listed in detail under the heading "Weather Forecast Areas" in Part 5.

(4) Frequencies for which the H3E/J3E single sideband modes of emission are shown in the MCTS Centre listings are designated by the carrier frequencies. The assigned frequencies are 1.4 kHz higher than the carrier frequencies listed. (This note also applies to the medium and high radiotelephone frequencies listed in the "Canadian Maritime Mobile Safety and Communications Frequencies" section).

❖ **Legend for MCTS Centre Listings**

H3E	-	Single Sideband, Full Carrier (Radiotelephony)
J3C	-	Facsimile - Single-sideband, suppressed carrier.
J3E	-	Single Sideband, Suppressed carrier (Radiotelephony)
BC	-	Broadcast.
C	-	Continuously Operating Radiobeacon.
CMB	-	Continuous Marine Broadcast
DF	-	Direction Finding
F1B	-	Radioteletype
F3E	-	Telephony, Frequency Modulation
G3E	-	Telephony, Frequency Modulation (Phase Modulation)
H+	-	This symbol followed by a number indicates minutes past the hour.
K	-	Ship Calibrating Radiobeacon
MCTS	-	Marine Communications and Traffic Services
MMSI	-	Maritime Mobile Service Identifier
PST	-	Indicates Pacific Standard Time (8 hours behind UTC)
SC	-	Ship Control (Bridge Operations)
SS	-	Ship/Shore – is an indicator for ship to shore communication and shore to ship communication
TS	-	Time Signals
❖	-	Indicates change or addition since last complete issue.
*	-	Indicates that, on this frequency, facilities are available for connecting ships directly to the commercial telephone system on shore.
#	-	Indicates that broadcasts are made simultaneously on these frequencies.
UTC	-	Indicates Coordinated Universal Time (For practical purposes, UTC is equivalent to GMT).
NAVTEX	-	Reference PART 4 for NAVTEX ID codes

❖ ***TELEPHONE/FACSIMILE/TELEX DIRECTORY***

SERVICE	*TELEPHONE NUMBER*	*FACSIMILE NUMBER*	*TELEX NUMBER*	*ANSWER BACK CODE*
MCTS CENTRE				
COMOX, B.C. (VAC)	(250) 339-3613	(250) 339-2372		
INUVIK, N.W.T. (VFA)	(867) 777-2667	(867) 777-2851		
PRINCE RUPERT, B.C. (VAJ)	(250) 627-3081	(250) 627-3070		
TOFINO, B.C. (VAE) VTS RADIO	(250) 726-7777 (250) 726-7312	(250) 726-4474		
VANCOUVER, B.C. (VAS)	(604) 775-8919	(604) 666-8453	043-52586	CGTC VAS VCR
VICTORIA, B.C. (VAK)	(250) 363-6611	(250) 363-6556		
CVTS OFFSHORE				
VANCOUVER, B.C.	(604) 666-6011	(604) 666-8453	04352586	CGTC VAS VCR
NORDREG CANADA				
Iqaluit, Nunavut	(867) 979-5724	(867) 979-4236	063-15529	NORDREG CDA
RESCUE COORDINATION CENTRE				
VICTORIA, B.C.	(250) 363-2333 1-800-567-5111		043-52586	

REGIONAL OFFICE ADDRESSES - (Covering the Pacific coast and Western Arctic)

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Fisheries and Oceans Canada
Canadian Coast Guard
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Facsimile: (604) 775-8827

*Regional Superintendent
Marine Communications and Traffic Services
Fisheries and Oceans Canada
Canadian Coast Guard
Central and Arctic Region
201 N. Front Street,
Suite 703
SARNIA, ONTARIO
N7T 8B1

Telephone: (519) 383-1937
Facsimile: (519) 383-1989

*Bilingual Services available

Marine Communications and Traffic Services Centre: **COMOX, BRITISH COLUMBIA**

Call Sign: **VAC**

Communication Sites Located at:

Alert Bay	50 35 12 N 126 55 28 W
Port Hardy	50 41 35 N 127 41 57 W
Comox	49 45 00 N 124 56 39 W
Discovery Mountain	50 19 27 N 125 22 16 W
Cape Lazo	49 42 24 N 124 51 41 W
Texada Island	49 41 47 N 124 26 07 W

For Radio Services call Comox Coast Guard Radio.
For Vessel Traffic Services call Comox Traffic.

Mailing address:

Fisheries and Oceans Canada
Canadian Coast Guard
Officer-in-Charge - MCTS Operations
Comox MCTS Centre
P.O. Box 220
Lazo, British Columbia
V0R 2K0

Telephone Numbers:

(250) 339-3613	MCTS Operations/Supervisor
(250) 339-2523	Officer-in-Charge
(250) 339-0748	CMB - South area
(250) 974-5305	CMB - North area

Facsimile: (250) 339-2372

MMSI: 00 316 0014

❖DSC services available 2001.

❖**MCTS Comox/VAC - Ship/shore Communications:**

Sites:	Channel:	Frequencies: Transmit:	Receive:	Remarks:
Comox		2182H3E 2054J3E	**2182** **2054**	
Cape Lazo	**Ch16** **Ch26*** **Ch22A** Ch71			
Discovery Mountain	**Ch16** **Ch84*** **Ch22A** Ch71			
Alert Bay	**Ch16** **Ch26*** **Ch22A** Ch71			
Port Hardy	**Ch16** **Ch84*** **Ch22A** Ch71			
Texada Island	**Ch16** **Ch84*** **Ch22A** Ch71			

MCTS Comox/VAC - Broadcasts:

Time PST:	Frequency:	Contents:
0720	WX1 Texada Island Alert Bay WX3 Port Hardy Ch21B Discovery Mtn. Cape Lazo	**RADIOTELEPHONY:** • Safety Notices to shipping. • Notices to Shipping.
1320	WX1 Texada Island Alert Bay WX3 Port Hardy Ch21B Discovery Mtn. Cape Lazo	**RADIOTELEPHONY:** • Safety Notices to shipping. • Notices to Shipping.
2020	WX1 Texada Island Alert Bay WX3 Port Hardy Ch21B Discovery Mtn. Cape Lazo	**RADIOTELEPHONY:** • Safety Notices to shipping. • Notices to Shipping.

MCTS Comox/VAC - Broadcasts:

Time PST:	Frequency:	Contents:
Continuous North	WX1 Alert Bay WX3 Port Hardy	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 5,6,11,12,13,14,15 **Local and Lighthouse Reports:** 1. McInnes Island 2. Addenbroke Island 3. Egg Island 4. Pine Island 5. Scarlett Point 6. Pulteney Point 7. Chatham Point 8. Cape Scott 9. Quatsino ❖ **Automated Weather Reports:** 1. Fanny Island 2. Herbert Island 3. Cathedral Point 4. Cape St. James 5. Sartine Island 6. Solander Island **Ocean Buoy Reports:** 1. South Hecate Strait 2. Chatham Point 3. East Dellwood 4. West Sea Otter 5. South Brooks • Safety Notices to Shipping.
Continuous South	WX1 Texada Island Ch21B Discovery Mtn. (Sonora Island) Cape Lazo	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 11,12 and 13. **Local and Lighthouse Reports:** 1. Cape Lazo 2. Chatham Point 3. Cape Mudge 4. Chrome Island 5. Merry Island 6. Entrance Island ❖ **Automated Weather Reports:** 1. Fanny Island 2. Grief Point 3. Sisters Inlet 4. Ballenas Island 5. Entrance Island **Ocean Buoy Reports:** 1. Sentry Shoal 2. Halibut Bank • Safety Notices to Shipping

Continuous broadcast information available by telephone (250) 339-0748 (Comox area) and (250) 974-5305 (Alert Bay area).

MCTS Comox/VAC - Traffic Lists:

Time PST:	Frequency:	Sites:
0720	WX1 WX3 Ch21B	**RADIOTELEPHONY:** • Texada Island • Alert Bay • Port Hardy • Discovery Mountain • Cape Lazo
1320	WX1 WX3 Ch21B	**RADIOTELEPHONY:** • Texada Island • Alert Bay • Port Hardy • Discovery Mountain • Cape Lazo
2020	WX1 WX3 Ch21B	**RADIOTELEPHONY:** • Texada Island • Alert Bay • Port Hardy • Discovery Mountain • Cape Lazo

Marine Communications and Traffic Services Centre: **INUVIK, NORTHWEST TERRITORIES**

Call Sign: **VFA**

❖**Communication Sites Located at:**

Inuvik	68 19 26 N 133 35 00 W
Parson's Lake	68 53 50 N 133 56 13 W
Cambridge Bay	69 06 47 N 105 00 55 W
Kugluktuk	67 49 30 N 115 06 30 W
Hay River	60 50 00 N 115 47 00W
Heart Lake	60 44 42 N 116 30 16 W
Yellowknife	62 25 41 N 114 24 19 W

- **For Radio Services call Inuvik Coast Guard Radio.**
- **Open only during season of navigation (May 15 to approximately October 31).**
- **Accepts messages to be directed to NORDREG CANADA.**

Mailing address:
Fisheries and Oceans Canada
Canadian Coast Guard
Inuvik MCTS Centre
Officer-in-Charge - MCTS Operations
P.O. Box 2659
Inuvik, NWT
X0E 0T0

Telephone Numbers:
(867) 777-2667 MCTS Operations
(867) 777-3625 Officer-in-Charge

Facsimile: (867) 777-2851

Electronic mail: VFA001@permafrost.com

MMSI: 00 316 0024

❖GMDSS services not available at this time.

❖**MCTS Inuvik/VFA - Ship/shore Communications:**

Sites:	Channel:	Frequencies: Transmit:	Receive:	Remarks:
Inuvik		2182H3E	**2182**	
		2558J3E	2142*	
	403	4363J3E	**4071***	
		5803J3E	**5803**	
		6218.6J3E	6218.6	
	601	6501J3E	**6200***	
	826	8794J3E	**8270***	
	1214	13116J3E	**12269***	
Hay River	403	4363J3E	4071	
		5803J3E	**5803**	
		6218.6J3E	6218.6	
	601	6501J3E	6200	
	826	8794J3E	8270	
Heart Lake	**Ch16**			
	Ch26			
Parson`s Lake	**Ch16**			
	Ch26*			
Cambridge Bay		2182H3E	**2182**	
		2558J3E	2142*	
	403	4363J3E	**4071***	
Cambridge Bay	**Ch16**			
	Ch26*			
Kugluktuk		2182H3E	**2182**	
		2558J3E	2142*	
	403	4363J3E	**4071***	
Kugluktuk	**Ch16**			
	Ch26*			
Yellowknife	**Ch 16**			

❖**MCTS Inuvik/VFA - Broadcasts:**

Time UTC:	Frequency:	Contents:
0115	5803 kHz Inuvik 4363J3E Hay River Ch26 Parsons Lake Heart Lake	**RADIOTELEPHONY:** • Technical synopsis for Western Arctic waters (if applicable for Mackenzie River and Great Slave Lake area) • Marine forecast for Great Slave Lake (Area 180) • Marine forecast for Mackenzie River (Area 110) • ODAS Weather, Buoys 45141 & 45150 • Mackenzie Stage Forecast (Mackenzie/Strong Point, Liard at Fort Liard, Liard at Liard Mouth, Mackenzie at Fort Simpson, Mackenzie at Norman Wells, Mackenzie at Sans Sault, Mackenzie at Fort Good Hope) • Notice to Shipping (Mackenzie Delta, Mackenzie River & Great Slave Lake).
0200	8456J3C	**RADIO FACSIMILE:** • Marine Wind Prognosis (Availability of charts may vary depending on shipping) • Ice Analysis (Mid July to 15 October) Amundsen Gulf to St. Roch Basin • Ice Analysis Beaufort Sea/Alaskan Coast **Note: Also available on request.**

❖**MCTS Inuvik/VFA - Broadcasts:**

Time UTC:	Frequency:	Contents:

0235	2558J3E
	Kugluktuk
	4363J3E
	Cambridge Bay
	6218.6J3E
	Inuvik
	Ch26
	Parson's Lake
	Cambridge Bay
	Kugluktuk
		RADIOTELEPHONY:
		• Technical synopsis for Western Arctic waters.
		• Forecasts for marine areas 111 to 121 inclusive.
		• Alaska Marine Forecast.
		• Notices to Shipping
		  • Mackenzie Delta
		  • Canadian waters west of 90°W
		
		Note: Ice conditions and forecasts available on request.

1315	5803J3E Inuvik 4363J3E Hay River Ch26 Parsons Lake Heart Lake	**RADIOTELEPHONY:** • Technical Synopsis for Western Arctic waters (if applicable for Mackenzie River and Great Slave Lake area) • Marine Forecast for Great Slave Lake (Area 180) • Marine forecast for Mackenzie River (Area 110) • Mackenzie Stage Forecast (Mackenzie/Strong Point, Liard at Fort Liard, Liard at Liard Mouth, Mackenzie at Fort Simpson, Mackenzie at Norman Wells, Mackenzie at Sans Sault, Mackenzie at Fort Good Hope) • Notice to Shipping (Mackenzie Delta, Mackenzie River & Great Slave Lake)

1435	2558J3E
	Kugluktuk
	4363J3E
	Cambridge Bay
	6218.6J3E
	Inuvik
	Ch26
	Parson's Lake
	Cambridge Bay
	Kugluktuk
		RADIOTELEPHONY:
		• Technical synopsis for Western Arctic waters.
		• Forecasts for marine areas 111 to 121 inclusive.
		• Alaska Marine Forecast.
		• Notices to Shipping
		  • Mackenzie Delta
		  • Canadian waters west of 90°W
		
		Note: Ice conditions and forecasts available on request.

1630	8456J3C	**RADIO FACSIMILE:** • Marine Surface Analysis (Availability of charts may vary depending on shipping) • Ice Analysis Amundsen Gulf to St. Roch Basin • Ice Analysis Beaufort Sea/Alaskan Coast. **Note: Also available on request.**

❖**MCTS Inuvik/VFA – Radio Facsimile Transmission Details:**

Modulation: J3C (FM) Index of cooperation: 576 Power: 1KW
Drum Speed: 120 rpm Frequencies: 8456.0 kHz, 8457.8 kHz (USB)

Note: **The areas included in the chart broadcasts vary with ice conditions and marine activity. All charts available can be transmitted or retransmitted upon request and availability by Inuvik MCTS.**

❖**MCTS Inuvik/VFA – Traffic Lists:**

Time UTC:	Frequency:	Sites:
0115	4363J3E 5803J3E Ch26	• Hay River • Inuvik • Heart Lake Parson's Lake
0235	2558J3E 4363J3E 6218.6J3E Ch26	• Kugluktuk • Cambridge Bay • Inuvik • Cambridge Bay Kugluktuk Parson's Lake
1315	4363J3E 5803J3E Ch26	• Hay River • Inuvik • Heart Lake Parson's Lake
1435	2558J3E 4363J3E 6218.6J3E Ch26	• Kugluktuk • Cambridge Bay • Inuvik • Cambridge Bay Kugluktuk Parson's Lake

Marine Communications and Traffic Services Centre:

PRINCE RUPERT, BRITISH COLUMBIA

Call Sign:

VAJ

❖**Communication Sites Located at:**

Prince Rupert	54 17 51 N 130 25 06 W	Klemtu	52 34 45 N 128 33 45 W
Hunter Point	53 15 31 N 132 42 53 W	Mount Dent	55 12 57 N 129 59 18 W
Barry Inlet	52 34 30 N 131 45 13 W	Mount Gil	53 15 46 N 129 11 42 W
Rose Inlet	52 13 18 N 131 12 54 W	Mount Hays	54 17 12 N 130 18 49 W
Cumshewa	53 03 33 N 131 59 47 W	Naden Harbour	53 57 18 N 132 56 30 W
Dundas Island	54 31 16 N 130 54 55 W	Van Inlet	53 15 08 N 132 32 31 W
Kitimat	54 03 20 N 128 37 51 W	Calvert Island	51 35 21 N 128 00 43 W

- **For Radio Services call Prince Rupert Coast Guard Radio.**
- **For Vessel Traffic Services call Prince Rupert Traffic.**

Mailing address:

Fisheries and Oceans Canada
Canadian Coast Guard
Officer-in-Charge - MCTS Operations
Prince Rupert MCTS Centre
Bag 4444
Prince Rupert, British Columbia
V8J 4K2

Telephone Numbers:

(250) 627-3081 MCTS Operations/Supervisor
(250) 627-3077 Officer-in-Charge

❖**Facsimile:**

(250) 627-3070 MCTS Operations
(250) 627-3068 Officer-in-Charge

MMSI: 00 316 0013

❖GMDSS services not available at this time.

Prince Rupert MCTS Centre VHF Direction Finding Advisory Service:

A VHF/DF advisory service is available for ships in difficulty from receiver sites located at Mount Hays, Dundas Island, Cumshewa, Van Inlet, Naden Harbour, Barry Inlet, Mt. Gil Klemtu and Calvert Island. Position and/or bearing and distance information may be provided for use at the discretion of the recipient.

❖**MCTS Prince Rupert/VAJ - Ship/shore Communications:**

Sites:	Channel:	Frequencies: Transmit:	Receive:	Remarks:
Prince Rupert		2182H3E 2054J3E 4125J3E	**2182** **2054** **4125**	
Hunter Point		2182H3E 2054J3E	**2182** **2054**	
Barry Inlet	**Ch11** **Ch16** **Ch22A Ch26***	156.550	156.550	
Cumshewa	**Ch11** **Ch16** **Ch22A** **Ch84***	156.550	156.550	
Dundas Island	**Ch16** **Ch22A** **Ch71** **Ch84**	156.575	156.575	
Kitimat	**Ch11** **Ch16** **Ch22A**	156.550	156.550	
Klemtu	**Ch11** **Ch16** **Ch22A** **Ch84***	156.550	156.550	
Rose Inlet	**Ch11** **Ch16** **Ch22A** **Ch26***	156.550	156.550	
Mount Dent	**Ch16** **Ch84***			
Mount Gil	**Ch11** **Ch16** **Ch22A** **Ch26***	156.550	156.550	
Mount Hays	**Ch16** **Ch22A** **Ch71** **Ch84***	156.575	156.575	
Naden Harbour	**Ch11** **Ch16** **Ch22A** **Ch71** **Ch84***	156.550 156.575	156.550 156.575	
Van Inlet	**Ch11** **Ch16** **Ch22A** **Ch26***	156.550	156.550	
Calvert Island	**Ch11** **Ch16** **Ch22A** **Ch84***	156.550	156.550	

❖**MCTS Prince Rupert/VAJ - Broadcasts:**

Time PST:	Frequency:	Contents:
0030	518F1B	**NAVTEX (D)** • Weather.
0430	518F1B	**NAVTEX (D)** • Weather
0505	2054J3E Prince Rupert Hunter Point	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 2,3,4,5,13,14,15,16,17 • **Automated Weather Reports:** 1. Grey Inlet 2. Lucy Island 3. Holland Rock 4. Bonilla Island 5. Rose Spit 6. Kindakun Rock 7. Prince Rupert 8. Langara Island 9. Cumshewa Island 10. Cape St. James 11. Cathedral Point 12. Sartine Island 13. Herbert Island **Ocean Buoy Reports:** 1. North Nomad 2. Middle Nomad 3. West Dixon Entrance 4. Central Dixon Entrance 5. North Hecate Strait 6. South Hecate Strait 7. West Moresby 8. Nanakwa Shoal 9. West Sea Otter 10. South Moresby 11. East Dellwood • Notices to Shipping
0830	518F1B	**NAVTEX (D)** • NOTSHIPS
1105	2054J3E Prince Rupert Hunter Point	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 2,3,4,5,13,14,15,16,17 • **Automated Weather Reports:** 1. Grey Inlet 2. Lucy Island 3. Holland Rock 4. Bonilla Island 5. Rose Spit 6. Kindakun Rock 7. Prince Rupert 8. Langara Island 9. Cumshewa Island 10. Cape St. James 11. Cathedral Point 12. Sartine Island 13. Herbert Island **Ocean Buoy Reports:** 1. North Nomad 2. Middle Nomad 3. West Dixon Entrance 4. Central Dixon Entrance 5. North Hecate Strait 6. South Hecate Strait 7. West Moresby 8. Nanakwa Shoal 9. West Sea Otter 10. South Moresby 11. East Dellwood • Notices to Shipping.
1230	518F1B	**NAVTEX (D)** • Weather
1630	518F1B	**NAVTEX (D)** • Weather

❖MCTS Prince Rupert/VAJ - Broadcasts:

Time PST:	Frequency:	Contents:
1705	2054J3E Prince Rupert Hunter Point	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 2,3,4,5,13,14,15,16,17 • **Automated Weather Reports:** 1. Grey Inlet 2. Lucy Island 3. Holland Rock 4. Bonilla Island 5. Rose Spit 6. Kindakun Rock 7. Prince Rupert 8. Langara Island 9. Cumshewa Island 10. Cape St. James 11. Cathedral Point 12. Sartine Island 13. Herbert Island **Ocean Buoy Reports:** 1. North Nomad 2. Middle Nomad 3. West Dixon Entrance 4. Central Dixon Entrance 5. North Hecate Strait 6. South Hecate Strait 7. West Moresby 8. Nanakwa Shoal 9. West Sea Otter 10. South Moresby 11. East Dellwood • Notices to Shipping
2030	518F1B	**NAVTEX (D)** • NOTSHIPS
2305	2054J3E Prince Rupert Hunter Point	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 2,3,4,5,13,14,15,16,17 • **Automated Weather Reports:** 1. Grey Inlet 2. Lucy Island 3. Holland Rock 4. Bonilla Island 5. Rose Spit 6. Kindakun Rock 7. Prince Rupert 8. Langara Island 9. Cumshewa Island 10. Cape St. James 11. Cathedral Point 12. Sartine Island 13. Herbert Island **Ocean Buoy Reports:** 1. North Nomad 2. Middle Nomad 3. West Dixon Entrance 4. Central Dixon Entrance 5. North Hecate Strait 6. South Hecate Strait 7. West Moresby 8. Nanakwa Shoal 9. West Sea Otter 10. South Moresby 11. East Dellwood • Notices to Shipping

❖**MCTS Prince Rupert/VAJ - Broadcasts:**

Time PST:	Frequency:	Contents:
Continuous	Ch21B Mount Hays Kitimat Mount Dent Rose Inlet WX1 Klemtu Van Inlet WX2 Barry Inlet Dundas Island Mount Gil Calvert Island WX3 Cumshewa Naden Harbour	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 2,3,4,5,13,14,15, 16,17. • **Local and Lighthouse Weather Reports:** 1. Green Island 8. Addenbroke Island 2. Triple Island 9. Egg Island 3. Bonilla Island 10. Pine Island 4. Langara Island 11. Cape Scott 5. Boat Bluff 12. Dryad Point 6. McInnes Island 13. Scarlett Point 7. Ivory Island **Automated Weather Reports:** 1. Grey Inlet 8. Langara Island 2. Lucy Island 9. Cumshewa Island 3. Holland Rock 10. Cape St. James 4. Bonilla Island 11. Cathedral Point 5. Rose Spit 12. Sartine Island 6. Kindakun Rock 13. Herbert Island 7. Prince Rupert **Ocean Buoy Reports:** 1. North Nomad 7. West Moresby 2. Middle Nomad 8. Nanakwa Shoal 3. West Dixon Entrance 9. West Sea Otter 4. Central Dixon Entrance 10. South Moresby 5. North Hecate Strait 11. East Dellwood 6. South Hecate Strait • Notices to Shipping & NOTFISH & Traffic Lists

Continuous broadcast information available by telephone from Prince Rupert (250) 624-9009.

❖**MCTS Prince Rupert/VAJ – Traffic Lists:**

Time PST:	Frequency:	Sites:
0505	2054J3E	Prince Rupert Hunter Point
1105	2054J3E	Prince Rupert Hunter Point
1705	2054J3E	Prince Rupert Hunter Point
2305	2054J3E	Prince Rupert Hunter Point

Marine Communications and Traffic Services Centre: **TOFINO, BRITISH COLUMBIA**

Call Sign: **VAE**

Communication Sites Located at:

Amphitrite Point	48 55 31 N 125 32 25 W
Eliza Dome	49 52 24 N 127 07 13 W
Mount Ozzard	48 57 33.8 N 125 29 29.9 W
Port Alberni	49 13 07 N 124 48 43 W
Estevan Point	49 22 59 N 126 32 00 W
Esperanza	49 50 32 N 126 48 22 W
Nootka	49 35 36 N 126 36 52 W
Holberg	50 38 24 N 128 07 34 W

- **For Radio Services call Tofino Coast Guard Radio.**
- **For Vessel Traffic Services call Tofino Traffic.**

Mailing address:

Fisheries and Oceans Canada
Canadian Coast Guard
Tofino MCTS Centre
Officer-in-Charge - MCTS Operations
P.O. Box 190
Ucluelet, British Columbia
V0R 3A0

Telephone Numbers:	(250) 726-7770	General Inquiries
	(250) 726-7312	MCTS Operations (Radio)
	(250) 726-7313	Officer-in-Charge
	(250) 726-7777	MCTS Operations (VTS)
Facsimile:	(250) 726-4474	MCTS Operations
	(250) 726-7234	Administration and Technical Dept.
MMSI:	00 316 0012	

❖GMDSS DSC services operational on test.

❖**MCTS Tofino/VAE - Ship Shore Communications:**

Sites:	Channel:	Frequencies: Transmit:	Receive:	Remarks:
Amphitrite Point		2182H3E 2054J3E 4125J3E	**2182** **2054** **4125**	
Eliza Dome	**Ch16** **Ch22A** **Ch26** **Ch74**			
Mount Ozzard	**Ch16** **Ch22A** **Ch26** **Ch74** **Ch84**			
Port Alberni	**Ch16** **Ch22A** **Ch26** **Ch74**			
Estevan Point	**Ch16** **Ch22A**			
Nootka	**Ch16** **Ch22A** **Ch74** **Ch84**			
Esperanza	**Ch16** **Ch22A**			
Holberg	**Ch16** **Ch22A** **Ch26** **Ch74**			

❖**MCTS Tofino/VAE - Broadcasts:**

Time PST:	Frequency:	Contents:
0110	518F1B	**NAVTEX (H)** • Notices to Shipping; Weather, Automated Reports, Ocean Buoy Reports
0450	2054J3E Amphitrite Point Ch21B Esperanza Mount Ozzard Holberg WX1 Eliza Dome WX2 Port Alberni Nootka WX3 Estevan Point	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 8,7,6,13,5,14,1 **Automated Weather Reports:** 1. Cape St. James 2. Cathedral Point 3. Herbert Island 4. Sartine Island 5. Solander Island 6. Sheringham Point 7. Race Rocks 8. Discovery Island **Ocean Buoy Reports:** 1. West Sea Otter 2. East Dellwood 3. South Brooks 4. La Perouse • Safety Notices to Shipping
0510	518F1B	**NAVTEX (H)** • Weather: Synopsis and weather forecast for areas 11,10,9,8,12, 13,6,7,1; Automated Reports, Ocean Buoy Reports.

❖MCTS Tofino/VAE - Broadcasts:

Time PST:	Frequency:	Contents:
0910	518F1B	• **NAVTEX (H)** Weather: Northeast Pacific Highseas Forecast, Automated Reports, Ocean Buoy Reports
1050	2054J3E Amphitrite Point Ch21B Esperanza Mount Ozzard Holberg WX1 Eliza Dome WX2 Port Alberni Nootka WX3 Estevan Point	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 8,7,6,13,5,14,1 **Automated Weather Reports:** 1. Cape St. James 2. Cathedral Point 3. Herbert Island 4. Sartine Island 5. Solander Island 6. Sheringham Point 7. Race Rocks 8. Discovery Island **Ocean Buoy Reports:** 1. West Sea Otter 2. East Dellwood 3. South Brooks 4. La Perouse • Safety Notices to Shipping.
1310	518F1B	**NAVTEX (H)** • Notices to Shipping • Weather: Automated Reports, Ocean Buoys Reports
1650	2054J3E Amphitrite Point Ch21B Esperanza Mount Ozzard Holberg WX1 Eliza Dome WX2 Port Alberni Nootka WX3 Estevan Point	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 8,7,6,13,5,14,1 **Automated Weather Reports:** 1. Cape St. James 2. Cathedral Point 3. Herbert Island 4. Sartine Island 5. Solander Island 6. Sheringham Point 7. Race Rocks 8. Discovery Island **Ocean Buoy Reports:** 1. West Sea Otter 2. East Dellwood 3. South Brooks 4. La Perouse • Safety Notices to Shipping.
1710	518F1B	**NAVTEX (H)** • Weather: Synopsis and Weather Forecast for areas 11,10,9,8, 12,13,6,7,1 Automated Reports, Ocean Buoy Reports.
2110	518F1B	**NAVTEX (H)** • Weather: Northeast Pacific Highseas Forecast, Automated Reports, Ocean Buoy Reports

❖**MCTS Tofino/VAE - Broadcasts:**

Time PST:	Frequency:	Contents:
2250	2054J3E Amphitrite Point Ch21B Esperanza Mount Ozzard Holberg WX1 Eliza Dome WX2 Port Alberni Nootka WX3 Estevan Point	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 8,7,6,13,5,14,1 **Automated Weather Reports:** 1. Cape St. James 2. Cathedral Point 3. Herbert Island 4. Sartine Island 5. Solander Island 6. Sheringham Point 7. Race Rocks 8. Discovery Island **Ocean Buoy Reports:** 1. West Sea Otter 2. East Dellwood 3. South Brooks 4. La Perouse • Safety Notices to Shipping
Continuous **Interrupted during live broadcasts**	Ch21B Mount Ozzard Esperanza Holberg WX1 Eliza Dome WX2 Port Alberni Nootka WX3 Estevan Point	**RADIOTELEPHONY:** • Synopsis and weather forecasts for areas 8,7,6,13,5,14,1 **Automated Weather Reports:** 1. Cape St. James 2. Cathedral Point 3. Herbert Island 4. Sartine Island 5. Solander Island 6. Sheringham Point 7. Race Rocks 8. Discovery Island **Ocean Buoy Reports:** 1. West Sea Otter 2. East Dellwood 3. South Brooks 4. La Perouse **Local and Lighthouse Weather Reports:** 1. Trial Island 2. Carmanah Point 3. Pachena Point 4. Cape Beale 5. Amphitritie Point 6. Lennard Island 7. Estevan Point 8. Nootka 9. Quatsino 10. Cape Scott 11. Pulteney Point 12. Scarlett Point 13. Pine Island 14. Egg Island 15. Addenbroke 16. Dryad 17. Boat Bluff 18. Ivory 19. McInnes • Coastal waters of Western Washington • Safety Notices to Shipping

Continuous Broadcast Information is available by telephone (250) 726-3415

❖**MCTS Tofino/VAE – Traffic Lists:** This service no longer available.

Marine Communications and Traffic Services Centre: **VANCOUVER, BRITISH COLUMBIA**

Call Sign: **VAS**

Communication Sites Located at:

Vancouver	49 17 05 N 123 06 44 W
Watts Point, Howe Sound	49 38 54 N 123 12 36 W

For Radio Services call Vancouver Coast Guard Radio.
For Vessel Traffic Services call Vancouver Traffic.

Mailing address:

Fisheries and Oceans Canada
Canadian Coast Guard
Vancouver MCTS Centre
Officer-in-Charge - MCTS Operations
2380 – 555 West Hastings Street
Vancouver, British Columbia
V6B 5G3

❖**Telephone Numbers:**

(604) 666-6011	Regional Marine Information Centre
(604) 666-1004	Officer-in-Charge
(604) 666-1003	Administrative
(604) 775-8919	Watch Supervisor/MCTS Operations Centre

Telex Number: 043-52586 CGTC VAS VCR

Facsimile: (604) 666-8453

❖**Electronic Mail:** MCTSRMIC@ATTMAIL.COM

MMSI: 00 316 0010

❖GMDSS services not available at this time.

MCTS Vancouver/VAS - Ship/shore Communications:

Sites:	Channel:	Frequencies: Transmit:	Frequencies: Receive:	Remarks:
Vancouver	**Ch12** **Ch16** **Ch22A** **Ch26***			
Watts Point, Howe Sound	**Ch12** **Ch16** **Ch22A** **Ch26***			

Marine Communications and Traffic Services Centre: **VICTORIA, BRITISH COLUMBIA**

Call Sign: **VAK**

Communication Sites Located at:

Lulu Island	49 10 30 N 123 07 15 W
Bowen Island	49 20 41 N 123 23 13 W
Mount Parke	48 50 23 N 123 17 41 W
Mount Newton	48 36 48 N 123 26 35 W
Mount Helmcken	48 24 07 N 123 34 17 W

For Radio Services call Victoria Coast Guard Radio.
For Vessel Traffic Services call Victoria Traffic.

Mailing address:

Fisheries and Oceans Canada
Canadian Coast Guard
Victoria MCTS Centre
Officer-in-Charge - MCTS Operations
Institute of Ocean Sciences
P.O. Box 6000
9860 West Saanich Road
Sidney, British Columbia
V8L 4B2

Telephone Numbers:

(250) 363-6818	Officer-in-Charge
(250) 363-6836	Administrative
(250) 363-6333	Watch Supervisor
(250) 363-6611	Operations

Facsimile: (250) 363-6556

MMSI: 00 316 0011

❖GMDSS DSC services operational on test.

MCTS Victoria/VAK - Ship/shore Communications:

Sites:	Channel:	Frequencies: Transmit:	Receive:	Remarks:
Lulu Island	**Ch16** **Ch26*** **Ch22A** **Ch74**			
Bowen Island	**Ch11** **Ch16** **Ch22A** **Ch74** **Ch84***			
Mount Parke	**Ch11** **Ch16** **Ch22A** **Ch26*** **Ch74**			
❖Mount Newton	**Ch11** **Ch16** **Ch22A** **Ch84***			
Mount Helmcken	**Ch11** **Ch16** **Ch22A** **Ch84***			

MCTS Victoria/VAK - Broadcasts:

Time PST:	Frequency:	Contents:
0710	Ch21B Mount Parke WX3 Bowen Island Mount Helmcken	**RADIOTELEPHONY:** • Notices to Shipping for areas 1, 2, 3, 4, 7, 8
1310	Ch21B Mount Parke WX3 Bowen Island Mount Helmcken	**RADIOTELEPHONY:** • Notices to Shipping for areas 1, 2, 3, 4, 7, 8
2110	Ch21B Mount Parke WX3 Bowen Island Mount Helmcken	**RADIOTELEPHONY:** • Notices to shipping for areas 1, 2, 3, 4, 7, 8

MCTS Victoria/VAK - Broadcasts:

Time PST:	Frequency:	Contents:
Continuous **Except during live broadcasts at 0710,1310 and 2110.**	Ch21B Mount Parke WX3 Bowen Island	**RADIOTELEPHONY:** • Synopsis and Weather Forecasts for areas 6,7,8,9,10,11 **Lighthouse Weather Reports:** 1. Chrome Island 2. Carmanah Point 3. Merry Island 4. Pachena Point 5. Entrance Island 6. Cape Beale 7. Amphitrite Point 8. Lennard Island 9. Trial Island 10. Estevan Point **Automated Weather Reports:** 1. Sheringham Point 2. Race Rocks 3. Victoria/Gonzales Point 4. Discovery Island 5. Kelp Reef 6. Saturna Island 7. Sandheads 8. Point Atkinson 9. Pam Rocks 10. Entrance Island 11. Ballenas Island 12. Sisters Islet 13. Grief Point **Ocean Buoy Report:** 1. Halibut Bank **Local Weather Reports:** 1. Jericho 2. Tsawwassen • MAREPS (when available) • Safety Notices to Shipping for areas 1,2,3,4
Continuous **Except during live broadcasts at 0710,1310 and 2110.**	WX3 Mount Helmcken.	**RADIOTELEPHONY:** • Synopsis and Weather Forecasts for areas 6,7,8,9,10,11 and for inland waters from Cape Flattery to mouth of Columbia River out 60 miles, Camano Island to Point Roberts, Puget Sound and Hood Canal. **Automated Weather Reports:** 1. Sheringham Point 2. Race Rocks 3. Victoria/Gonzales Point 4. Kelp Reef 5. Saturna Island 6. Sandheads **Local Lighthouse Weather Reports:** 1. Estevan Point 2. Lennard Island 3. Amphitrite Point 4. Cape Bealet 5. Pachena Point 6. Carmanah Point 7. Trial Island **Ocean Buoy Report:** 1. La Perouse Bank **U.S. Buoy Report:** 1. Cape Flattery 2. Smith Island • MAREPS's (when available) • Safety Notices to Shipping for areas 3,4,7,8

❖**Continuous broadcast information available for Bowen Island and Mount Parke by telephone (604) 666-3655 or (250) 363-6492.**

❖**Continuous broadcast information available for Mount Helmcken by telephone (250) 363-6880.**

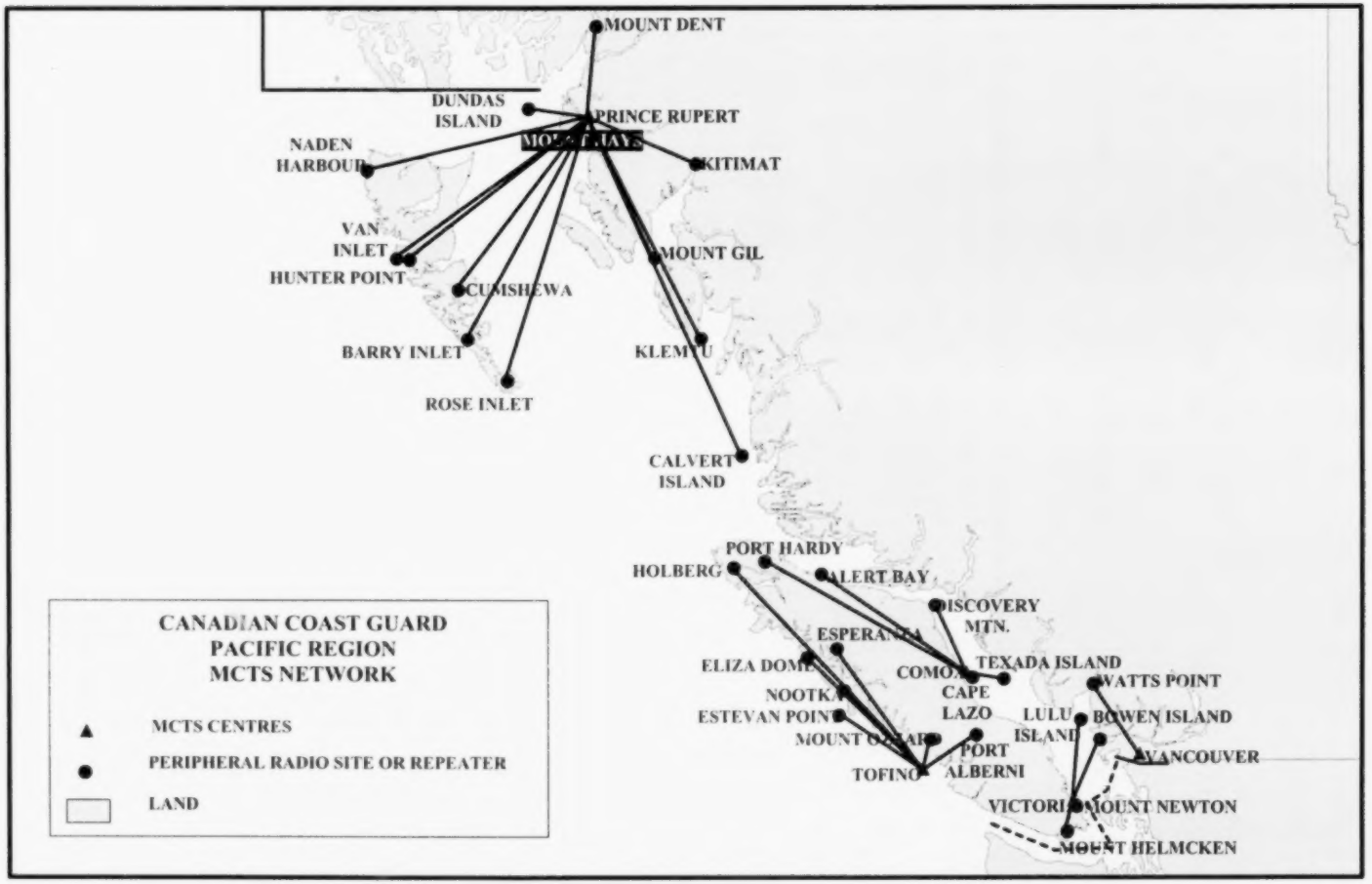
MCTS Victoria/VAK - Traffic Lists:

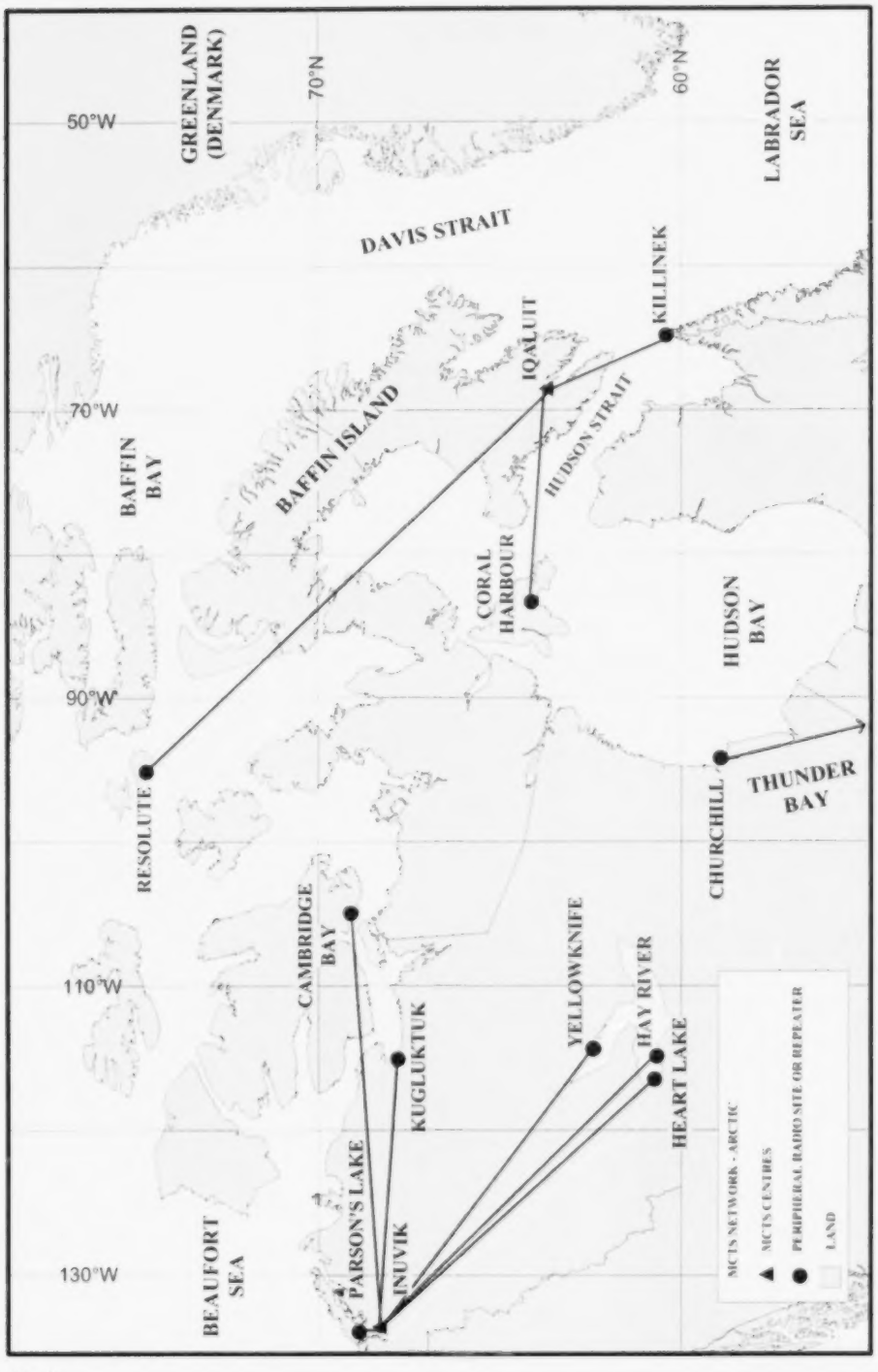
Time PST:	Frequency:	Sites:
0710	Ch21B WX3	**RADIOTELEPHONY:** • Mount Parke • Bowen Island Mount Helmcken
1310	Ch21B WX3	**RADIOTELEPHONY:** • Mount Parke • Bowen Island Mount Helmcken
2110	Ch21B WX3	**RADIOTELEPHONY:** • Mount Parke • Bowen Island Mount Helmcken

BRIDGE OPERATIONS – PACIFIC COAST

1 Name Coordinates Call Sign	2 Class of Service	3 Channel	4 Remarks
JOHNSON STREET BRIDGE **VICTORIA HARBOUR** 48 25 40 N 123 21 52 W VAH20	SC	12	Operated by the City of Victoria, B.C. Ship traffic control only.
MARPOLE RAILWAY BRIDGE, B.C. 49 12 00 N 123 07 31 W VGC248	SC	16 74 06 08	Operated by Canadian Pacific Railway. Note: In operation from 0730 to 1500 local time.
NEW WESTMINSTER RAILWAY BRIDGE, B.C. 49 12 32 N 122 53 25 W XLZ35	SC	16 11 12 74	Operated by Department of Public Works. Ship traffic control only.
QUEENSBORO RAILWAY BRIDGE, B.C. 49 11 51 N 122 55 23 W XJJ62	SC	16 74 06 08	Operated by B.C. Southern Railway.
SECOND NARROWS RAILWAY BRIDGE 49 17 42 N 123 01 27 W CJU52	SC	12	Operated by Canadian National Railway. Ship Traffic control only.

Map 1


MOUNT DENT
DUNDAS ISLAND
PRINCE RUPERT
NADEN HARBOUR
KITIMAT
VAN INLET
HUNTER POINT
MOUNT GIL
CUMSHEWA
BARRY INLET
ROSE INLET
CALVERT ISLAND
PORT HARDY
HOLBERG
ALERT BAY
DISCOVERY MTN.
ESPERANZA
ELIZA DOME
TEXADA ISLAND
WATTS POINT
NOOTKA
CAPE LAZO
ESTEVAN POINT
LULU ISLAND
BOWEN ISLAND
PORT ALBERNI
TOFINO
VANCOUVER
VICTORIA
MOUNT NEWTON
MOUNT HELMCKEN
CANADIAN COAST GUARD
PACIFIC REGION
MCTS NETWORK
MCTS CENTRES
PERIPHERAL RADIO SITE OR REPEATER
LAND


GREENLAND (DENMARK)
50°W
70°N
60°N
LABRADOR SEA
DAVIS STRAIT
KILLINEK
IQALUIT
70°W
BAFFIN ISLAND
BAFFIN BAY
HUDSON STRAIT
CORAL HARBOUR
HUDSON BAY
90°W
RESOLUTE
CHURCHILL
THUNDER BAY
CAMBRIDGE BAY
YELLOWKNIFE
HAY RIVER
110°W
KUGLUKTUK
HEART LAKE
PARSON'S LAKE
INUVIK
130°W
BEAUFORT SEA
NICTS NETWORK - ARCTIC
NICTS CENTRES
PERIPHERAL RADIO SITE OR REPEATER
LAND

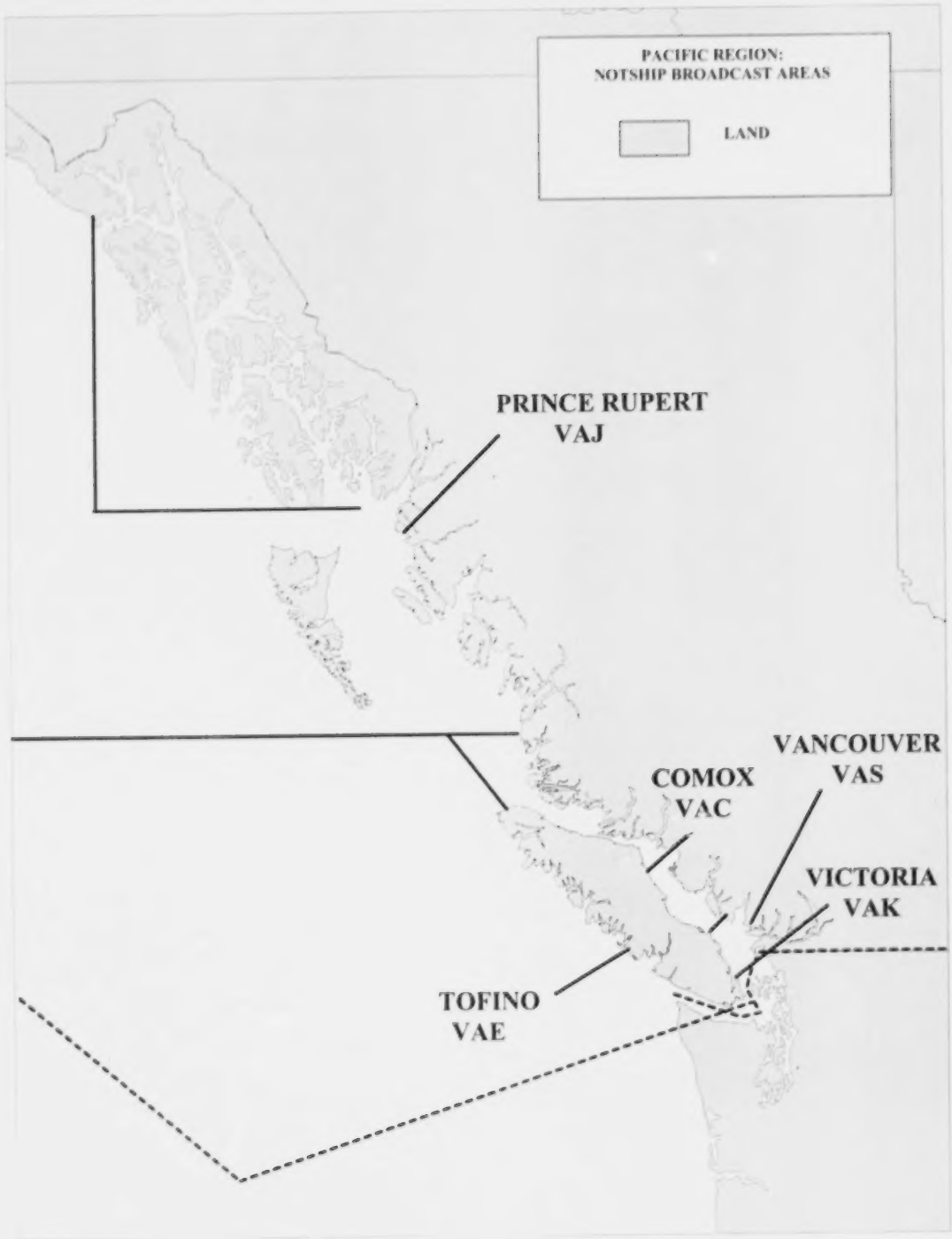
Map 2

Map 3

NOTE: Areas of radio coverage depicted on this map are based upon theoretical predictions.

Map 3

NOTE: Areas of radio coverage depicted on this map are based upon theoretical predictions.


PACIFIC REGION:
NOTSHIP BROADCAST AREAS
LAND
PRINCE RUPERT
VAJ
VANCOUVER
VAS
COMOX
VAC
VICTORIA
VAK
TOFINO
VAE

Map 4

RADIO BEACON STATIONS – PACIFIC COAST
CONTINOUSLY OPERATING RADIO BEACONS
(all stations located in British Columbia)

1 Name and Location	2 Frequence	3 Range Nautical Miles	4 Identifier	5 Remarks
ACTIVE PASS 48 52 26 N 123 17 23 W	378	50	.- .--. (A P)	Open year round. Caution: bearing error could result from coastal refraction. (NAVCAN)
CAPE SCOTT 50 46.9 N 128 25.6 W	353	75	--.. . ... (Z E S)	Open year round.
DEAD TREE POINT 53 21 01 N 131 56 23 W	248	25	--. (Z)	Open year round. (NAVCAN)
ESTEVAN POINT 49 22 59 N 126 32 38.5 W	373	125	. .--. (E P)	Open year round. (DND)
MASSETT 54 01 54 N 132 07 38 W	278	25	.---- ..- (I U)	
MCINNES ISLAND 52 15 42 N 128 43 18 W	388	100	-- ... (M S)	Open year round. (NAVCAN)
PRINCE RUPERT 54 15 49 N 130 25 20 W	218	100	.--. .-. (P R)	Open year round. (NAVCAN)
SANDSPIT* 53 11 48 N 131 46 33 W	368	75	--.. .--. (Z P)	Open year round. Caution: bearing error could result from coastal refraction. (NAVCAN)
TOFINO 49 02 54 N 125 42 16 W	359	50	-.-- .- --.. (Y A Z)	Open year round. Caution: bearing error could result from coastal refraction. (NAVCAN)

***Note:** The NavCan operated Sandspit radio beacon on 368 kHz is not the same one used for DGPS.

RADIO BEACON STATION - U.S. WEST COAST
CONTINOUSLY OPERATING RADIO BEACON

1 Name and Location	2 Frequence	3 Range Nautical Miles	4 Identifier	5 Remarks
EDIZ HOOK, WA. 48 08 25 N 123 24 04 W	317	20	-.- (K)	Open year round.

RADAR BEACON (RACONS) – PACIFIC COAST
(all stations located in British Columbia, excluding Juan de Fuca)

1 Name and Location	2 Range Nautical Miles	3 Arc Degrees	4 Identifier	5 Remarks
ALEXANDRA BANK **BIFURCATION LIGHT** **BUOY DAX** 54 14 08.7N 130 33 56.7W	10	360	-.- (K)	Open year round.
BILLARD ROCK **WHISTLE BUOY "M3"** **QUATSINO SOUND** 50 25 47.2N 127 57 47.7W	10	360	--. (G)	Open year round.
BURRARD INLET **CAUTIONARY** **LIGHT BUOY "QB"** 49 19 02.5N 123 12 00 W	8	360	-.- (K)	Open year round.
BUTTERWORTH ROCKS 54 14 08N 130 58 30W	8	360	-..- (X)	Open year round.
CANOE PASS LIGHT **AND BELL BUOY "T14"** 49 02 17.4N 123 15 22.7W	4/15	360	-.- (K)	Open year round.
ESPERANZA INLET LIGHT **AND WHISTLE BUOY MD** 49 47 07 N 127 02 48 W	8	360	-.- (K)	Open year round.
HANMER ROCKS **BROWNS PASSAGE** 54 19 26.5N 130 49 20.3W	10	360	-- (M)	Open year round.
JACINTO ISLAND 52 56 31N 129 36 43W	8	360	--.- (Q)	Open year round.
JUAN DE FUCA **TRAFFIC LANE** **SEPARATION** **LIGHT BUOY "J" U.S.A.** 48 29 14 N 124 43 39W	8	360	--- (O)	Open year round.
LAWN POINT RANGE 53 25 29.7N 131 54 50.2W	10	360	-.- (K)	Open year round.

RADAR BEACON (RACONS) – PACIFIC COAST
(all stations located in British Columbia, excluding Juan de Fuca)

1 Name and Location	2 Range Nautical Miles	3 Arc Degrees	4 Identifier	5 Remarks
ROBERTS BANK 49 05 15.7N 123 18 36.9W	2	360	-. (N)	Open year round.
ROBERTS BANK CAUTIONARY LIGHT BUOY "TA" 49 04 25.4N 123 22 50.7W	15	360	--- (O)	Navigation season only.
ROSE SPIT 54 11 12.5N 131 38 43W	10	360	..- (U)	Open year round.
ROSENFELD ROCK LIGHT BUOY "U59" 48 48 12N 123 01 34W	10	360	..- (U)	Open year round.
SEAL ROCKS 54 00 00N 130 47 26W	10/20	360	... (S)	Open year round.
SEAPOOL ROCKS LIGHT AND WHISTLE BUOY "Y49" 48 48 54N 125 12 14W	8	360	-.- (K)	Open year round.
STENHOUSE SHOAL, LIGHT AND WHISTLE BUOY "D59" 54 20 07N 130 56 03W	8	360	-.-. (C)	Open year round.
THRASHER ROCK 49 09 00.5N 123 38 25W	8	360	-..- (X)	Open year round.
VANCOUVER APPROACH CAUTIONARY LIGHT BUOY "QA" 49 16 35N 123 19 13.5W	3/10	360	--. (G)	Open year round.
VICTORIA HARBOUR CAUTIONARY LIGHT BUOY "VH" 48 22 32N 123 23 29W	8	360	..-. (F)	Open year round.

RADAR BEACON (RACONS) – WESTERN ARCTIC
(all stations located in NWT)

1 Name and Location	2 Range Nautical Miles	3 Arc Degrees	4 Identifier	5 Remarks
ATKINSON POINT 69 56 54N 131 26 42W	5	360	--. (G)	Navigation season only.
BAILLE ISLANDS 70 38 16.5N 128 15 46.6W	20	360	-.- (K)	Navigation season only.
CALTON POINT **BEAUFORT SEA** 69 30 09N 139 06 30W	12	360	-. (N)	Navigation season only.
CAPE DALHOUSIE 70 16 05N 129 42 36W	5	360	--. (G)	Navigation season only.
COLLINSON HEAD 69 34 30N 138 51 34W	10	360	--. (G)	Navigation season only.
DEMARCATION RACON 69 38 06N 140 59 06W	10	360	-.- (K)	Navigation season only.
HARDISTY ISLAND 61 43 52N 114 34 36W	10	360	--. (G)	Navigation season only.
KAY POINT 69 17 26N 138 22 42W	20	190	-.- (K)	Navigation season only.
McKINLEY NORTH 69 93 42,73N 130 58 52.38W	5	360	--.. (Z)	Navigation season only.
McKINLEY SOUTH 69 57 1.89N 131 03 16.59W	5	360	.-- (W)	Navigation season only.
NORTH PEAK 69 35 35N 132 55 30W	20	360	-. (N)	Navigation season only.
PELLY ISLAND 69 37 54N 135 29 00W	5	360	--.. (Z)	Navigation season only.
PILOT ISLANDS RANGE 62 13 04N 114 06 48W	15	360	-.-. (C)	Navigation season only.
PITT HEAD 69 09 15N 136 10 30W	10	360	-.- (K)	Navigation season only.

RADAR BEACON (RACONS) – WESTERN ARCTIC
(all stations located in NWT)

1 Name and Location	2 Range Nautical Miles	3 Arc Degrees	4 Identifier	5 Remarks
PULLEN ISLAND 69 46 28N 134 24 40W	20	360	--.- (U)	Navigation season only.
RELIEF ISLAND 70 08 45N 130 49 30W	20	210	--.. (Z)	Navigation season only.
SHINGLE POINT 69 00 30N 137 34 12W	10	360	-.-- (Y)	Navigation season only.
TUKTOYAKTUK ISLAND RANGE 69 27 21N 132 59 49W	5	360	-.-. (C)	Navigation season only.
WARREN POINT 69 45 00N 132 21 30W	10	360	-.-. (C)	Navigation season only.

RADAR BEACON (RACONS) – WESTERN ARCTIC
(all stations located in Nunavut)

1 Name and Location	2 Range Nautical Miles	3 Arc Degrees	4 Identifier	5 Remarks
CACHE POINT 68 39 24N 113 25 00W	20	360	--. (G)	Navigation season only.
CAPE BEXLEY, 69 00 40N 115 55 00W	10/20	210	-.-- (Y)	Navigation season only.
DELTA ISLAND, 68 35 26N 100 01 45W	20	360	--. (G)	Navigation season only.
M'CLINTOCK POINT, 69 18 45N 99 53 00W	20	360	-.-. (C)	Navigation season only.
NORDENSKIOLD ISLANDS 68 21 12N 100 47 12W	10	360	-.- (K)	Navigation season only.
RISTVEST ISLAND 68 31 11N 97 15 10W	10	360	-.-- (Y)	Navigation season only
TAYLOR POINT 69 37 15N 95 35 27W	6	360	-.- (K)	Navigation season only.
WILK ISLAND 68 31 22N 99 33 06W	10	360	--.. (Z)	Navigation season only.

***CANADIAN HYDROGRAPHIC SERVICE* - Conversion of charts to North American Datum 1983**

The Canadian Hydrographic Service is converting navigational charts to the newly defined North American Datum 1983 (NAD 83).

NAD 83 is considered equivalent to the World Geodetic System 1984 (WGS 84) recently adopted as the horizontal datum for world-wide use. The advantage of the new datum is its compatibility with satellite positioning systems, both the current NNSS TRANSIT or SATNAV System or the new NAVSTAR (GPS) System.

The difference in the position of the same point when quoted on the former NAD 27 and the new NAD 83 is up to 60 metres on the Atlantic coast, about 110 metres on the Pacific coast and almost zero near Windsor although there can be local discrepancies from these approximations.

Horizontal positions obtained from satellite receivers are based on NAD 83 (WGS 84) and must be converted to the horizontal chart datum (if not NAD 83) before being used. In some cases, the horizontal position obtained by LORAN-C coordinate converters, after due correction for Additional Secondary Factor (see Part 6), are based on NAD 83 and must also be converted to horizontal chart datum (if not NAD 83).

A note is being added to existing charts indicating the datum on which the chart is based, and providing the increase or decrease required to convert the latitude and longitude from NAD 83 to the chart datum (for an existing chart) or from NAD 27 to NAD 83 (for a chart on NAD 83). Mariners will be advised via Notices to Mariners of these conversion values.

New Charts and New Editions being produced are now based on NAD 83 and contain sufficient information to allow conversion to and from positions given in NAD 27.

Latitude and longitude positions given in this publication are in NAD 27 unless otherwise indicated.

❖***DIFFERENTIAL GLOBAL POSITIONING SYSTEM (DGPS)***

Since May 2000, the Full Operational Service (FOS) of the Canadian Coast Guard DGPS service has been available from 19 DGPS stations located on the East and West coasts of Canada and parts of the Great Lakes. DGPS corrections are broadcast from medium frequency (MF) radiobeacon transmitters located to cover selected marine areas and waterways. The broadcasts are in accordance with international standards for radiobeacon DGPS services. DGPS provides continuous precise positioning of 10 metres for 95% or better, of the time (provided that suitable DGPS receiver equipment is utilized, properly installed and maintained).

Additional information on the use of the DGPS service will be announced through Notices to Mariners. General information is also available from the CCG Web Site: **http://www.ccg-gcc.gc.ca/main.htm**

The corrections from the DGPS service are calculated at the reference station in the NAD 83 coordinates. To process the information properly, DGPS receivers should be adjusted to the WGS 84 setting. Although WGS 84 and NAD 83 are essentially the same (only a few centimetres difference), it is highly recommended that all DGPS receivers be set to WGS 84 to take full advantage of the precision of DGPS. When utilizing charts other than NAD 83, DGPS latitude and longitude positions must be adjusted to the appropriate datum using the information contained in the charts.

The table that follows provides information on existing DGPS broadcasts. A list of United States Coast Guard (USCG) DGPS transmitters providing coverage in Canadian waters may be obtained directly from the USCG. Figure 1 shows the nominal coverage from the existing broadcast stations. Users should be aware that coverage is subject to short and long term variations due to environmental and seasonal conditions.

❖CCG DGPS BROADCASTS
Pacific Coast

Station Name	*Location*	*Frequency and Transmission rate*	*IALA Reference station ID*	*IALA Radiobeacon ID*	*Remarks*
Alert Bay, B.C.	50 35N 126 55W	309 kHz 200 bps	300, 301	909	Full Operational Service
Amphitrite Point, B.C.	48 55N 125 32W	315 kHz 200 bps	302, 303	908	Full Operational Service
Richmond, B.C.	49 11N 123 07W	320 kHz 200 bps	304, 305	907	Full Operational Service
Sandspit, B.C.	53 14N 131 48W	300 kHz 200 bps	306, 307	906	Full Operational Service

Pacific Region DGPS Coverage

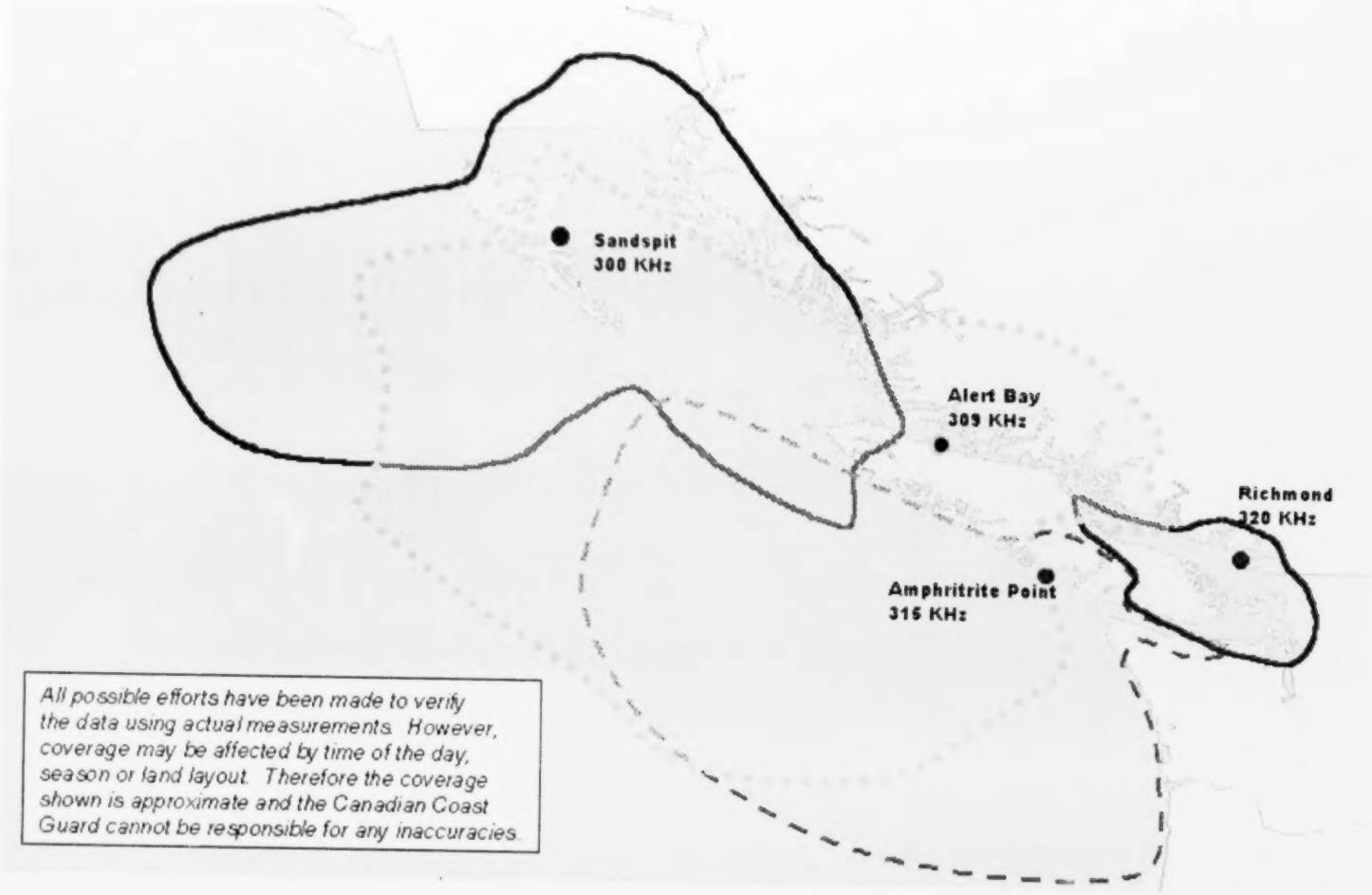

Sandspit
300 KHz
Alert Bay
309 KHz
Richmond
320 KHz
Amphritrite Point
315 KHz
All possible efforts have been made to verify the data using actual measurements. However, coverage may be affected by time of the day, season or land layout. Therefore the coverage shown is approximate and the Canadian Coast Guard cannot be responsible for any inaccuracies.

Figure 1

PART 3

VESSEL TRAFFIC SERVICES (VTS)

MARINE INFORMATION

❖Notices To Shipping

Notices to Shipping (NOTSHIP) issued for the west coast of Canada and the western Arctic are assigned an alphanumeric designator. The alphanumeric designator consists of an alpha character which identifies the Canadian Coast Guard (CCG) Notice to Shipping. issuing authority The alpha character is followed by a number commencing with the number 001 on January 1 each year and subsequently increasing with each new notice until years end. Alpha designators utilized in Canadian Notices to Shipping are as follows:

P – Pacific A – Arctic H – Hay River District (Athabasca-Mackenzie Watershed)

Broadcast times and radio frequencies for Notice to Shipping broadcasts by CCG Marine Communications and Traffic Services (MCTS) Centres are listed in Part 2 of this publication.

Some Notices to Shipping remain in effect for extended periods of time. In order to reduce broadcast time, these notices are designated as Written Notices to Shipping. Written notices bear the same consecutive number as the corresponding broadcast notice and are cancelled in the same manner including deletion from the following monthly summary of Written Notices to Shipping. Written Notices to Shipping are printed in circular form and distributed to shipping companies, agents and other interested parties. Persons may have their names added to or deleted from the mailing list by contacting the appropriate NOTSHIP issuing authority in their area. Written Notices to Shipping are not issued for the Arctic Region.

Masters are reminded of the regulatory requirement to report any danger, potential danger or hazard to navigation which they may encounter. Reports should be forwarded to the appropriate MCTS Centre as soon as possible to ensure the widest distribution to mariners through broadcast Notices to Shipping.

Information Updates

Notices to Mariners contain information which serves to correct charts and related publications. Up-to-date information is available to vessels inbound for Canadian waters on any changes which have occurred between the date of issue of the most recent monthly edition of Canadian Notices to Mariners held on board and the time the vessel comes within reception range of CCG MCTS Centres. Vessels wishing to avail themselves of this service should send their request directly to *CVTS OFFSHORE* or *NORDREG CANADA*. Requests may also be routed via any MCTS Centre as listed in Part 2 of this document.

When making this request the following information shall be included:

- ship's name and call-sign
- present position, destination and intended route
- most recent monthly edition of Canadian Notices to Mariners held on board
- list of recent Notices to Shipping held on board.

Ice information, ice routing and icebreaker assistance may be obtained from *NORDREG CANADA*. Refer to Notice Number 6 of the Annual Edition, Notices to mariners or the publication Ice Navigation in Canadian Waters for additional information.

❖The purpose of this section is to describe to shipboard personnel the procedures to be followed by vessels when within or intending to enter Canadian waters off the west coast of Canada and waters of the Western Arctic to which the *Arctic Waters Pollution Prevention Act* apply.

RESPONSIBILITIES

There is no intention on the part of the CCG to attempt to navigate or manoeuvre ships from a shore station and nothing in this publication overrides the authority of the master of his responsibility for the safe navigation of his ship. Information passed to the master is intended to assist him in the safe conduct of his ship.

A Marine Communications and Traffic Services (MCTS) Officer may, under specific circumstances:

(a) direct the master, pilot or person in charge of the deck watch of the vessel to provide any pertinent information in respect of that vessel that may be specified in the direction;

(b) direct the vessel to use any radio frequencies in communications with coast stations or other vessel that may be specified in the direction; and

(c) direct the vessel, at the time, between the times or before or after any event that may be specified in the direction,
- to leave a VTS Zone;
- to leave or refrain from entering any area within a VTS Zone that may be specified in the direction; or
- to proceed to or remain at any location within a VTS Zone that may be specified in the direction.

A vessel as well as the master, pilot or person in charge of the deck watch of a vessel, shall comply with a direction given to it or them by a MCTS Officer. Notwithstanding, the master, pilot or person in charge of the deck watch may take any action that may be required to ensure the safety of life, the ship or any other ship.

The master of a ship shall ensure that before the ship enters a VTS Zone the ship's radio equipment is capable of receiving and transmitting radio communications on the appropriate VTS sector frequency.

TRAFFIC CLEARANCE

A "Traffic Clearance" is an authorization for a ship to proceed subject to such conditions as may be included in the authorization. The traffic clearance is predicated upon ship report information and known waterway/traffic conditions. A traffic clearance does not eliminate the need for other authorizations required by legislation or by- laws.

Should any factor upon which the traffic clearance is predicated alter to the detriment of safe navigation, the traffic clearance may be delayed or other conditions may be attached to the traffic clearance.

A Traffic Clearance is required prior to:
- entering a VTS zone;
- commencing a departure manoeuvre;
- commencing a manoeuvre that may be detrimental to safe navigation;
- proceeding after being stranded, stopped due to breakdown of main propulsion machinery or steering gear, or involved in a collision.

COMMUNICATIONS

Radiotelephone procedures used in communicating with a MCTS centre are those specified by the International Telecommunications Union in the *"Manual for Use by The Maritime Mobile and Maritime Mobile Satellite Services"*.

A continuous listening watch shall be maintained on the appropriate VTS sector frequency on radio equipment located:

- at any place on board the ship, where the ship is at anchor or moored to a buoy; and
- in the vicinity of the ship's conning position, where the ship is underway.

A continuous listening watch may be suspended if a MCTS Officer directs the ship to communicate with coast stations and/or other ship stations on a different VHF radio frequency.

All times given in VHF reports should be in local time and in accordance with the 24-hour clock system.

Navigation safety calls on designated VTS sector frequencies should be kept to the minimum consistent with the safety requirement of the situation.

Communication Difficulties

Where a ship, for any reason other than ship board radio equipment failure is unable to obtain the required traffic clearance or after receiving a traffic clearance, is unable to maintain direct communication with the appropriate MCTS Centre, the master may nevertheless proceed on his route, but shall take all reasonable measures to communicate with the appropriate MCTS Centre as soon as possible.

Ship Board Radio Equipment Malfunction

In the event of a ship board radio equipment failure where the ship is unable to obtain the required traffic clearance or after receiving a traffic clearance, is unable to maintain direct communication with the appropriate MCTS Centre,

The vessel shall:

(*a*) if it is in a port where repairs can be made, remain in the port until the vessel is able to establish communications in accordance with the *Vessel Traffic Services Zones Regulations*; or

(*b*) if it is not in a port where repairs can be made, proceed to the nearest reasonably safe port or anchorage on its route and remain there until the vessel is able to establish communications in accordance with the *Vessel Traffic Services Zones Regulations*.

CANADA/UNITED STATES CO-OPERATIVE VESSEL TRAFFIC SYSTEM AGREEMENT

In 1979 by formal agreement, the Canadian and the United States Coast Guards established the Co-operative Vessel Traffic System (CVTS) for the Strait of Juan de Fuca region. The purpose of the CVTS is to provide for the safe and efficient movement of vessel traffic while minimizing the risk of pollution by preventing collisions and groundings and the environmental damage that would follow.

Co-operative Vessel Traffic Services

In accordance with the CVTS Agreement, when inbound and crossing longitude 127°W, latitude 48°N, or within 50 NM of Vancouver Island, all vessels 30 meters or greater, including tug and tows, contact "Tofino Traffic" on VHF Channel 74. After contact has been made with Tofino Traffic, vessels will receive instructions on when to switch to alternate frequencies for Seattle Traffic (VHF Channel 5A) and subsequently for Victoria Traffic (VHF Channel 11).

Participation with Tofino, Seattle, and Victoria Traffic is mandatory within Canadian and U.S. territorial waters. Though participation seaward of Canadian and U.S. territorial waters is voluntary, vessels are strongly encouraged to participate to receive the full benefit of the available Vessel Traffic Services which are available considerably further offshore, typically about 60 nautical miles. These benefits include traffic information, warnings of vessel congestion or other hazardous conditions, and many other forms of transit assistance.

Tofino CVTS Zone

West Coast Approaches to Juan de Fuca Strait

In accordance with the CVTS Agreement, the Tofino MCTS Centre shall provide Vessel Traffic Services west of 124°40'00"W in Juan de Fuca Strait out to 127° West meridian of longitude, and intersecting to the south to 48° North parallel of latitude from the west coast of Washington State. This area is administered by the CCG from the MCTS Centre at Amphitrite Point, B.C. (Tofino Traffic).

All communications with vessels in these areas will be conducted by Tofino Traffic on VHF Channel 74 (156.725 MHz).

Seattle CVTS Zone

Juan de Fuca Strait

In accordance with the CVTS Agreement, the area containing all Canadian and United States waters from the meridian of longitude 124°40'00"W which intersects the Canadian and United States shorelines thence easterly through the Juan de Fuca Strait, including all waters south and east of a line from Church Point to Race Rocks light to the intersection of the Canada/United States International boundary to Hein Bank light and bell buoy to Cattle Point, and south of a line from Sucia Island to Clements Reef buoy "2", to Alden Bank lighted gong buoy "A" to the shoreline at Birch Point, including the U.S. Gulf Island waters is administered by the United States Coast Guard from the VTS Centre at Seattle, WA. (Seattle Traffic).

All communications with vessels in these areas will be conducted by Seattle Traffic on VHF Channel 5A (156.250 MHz).

Victoria CVTS Zone

Haro Strait and Approaches, Boundary Pass, South Portion Strait of Georgia

In accordance with the CVTS Agreement, the area containing all Canadian and United States waters north and east of a line from Church Point to Race Rocks light to the intersection of the Canada/United States International boundary to Hein Bank light and bell buoy to Cattle Point including all of Haro Strait, Boundary Passage and the southern portion of the Strait of Georgia is administered by the Canadian Coast Guard from the Victoria MCTS Centre. (Victoria Traffic).

All communications with vessels in these areas will be conducted by Victoria Traffic on VHF Channel 11 (156.55 MHz).

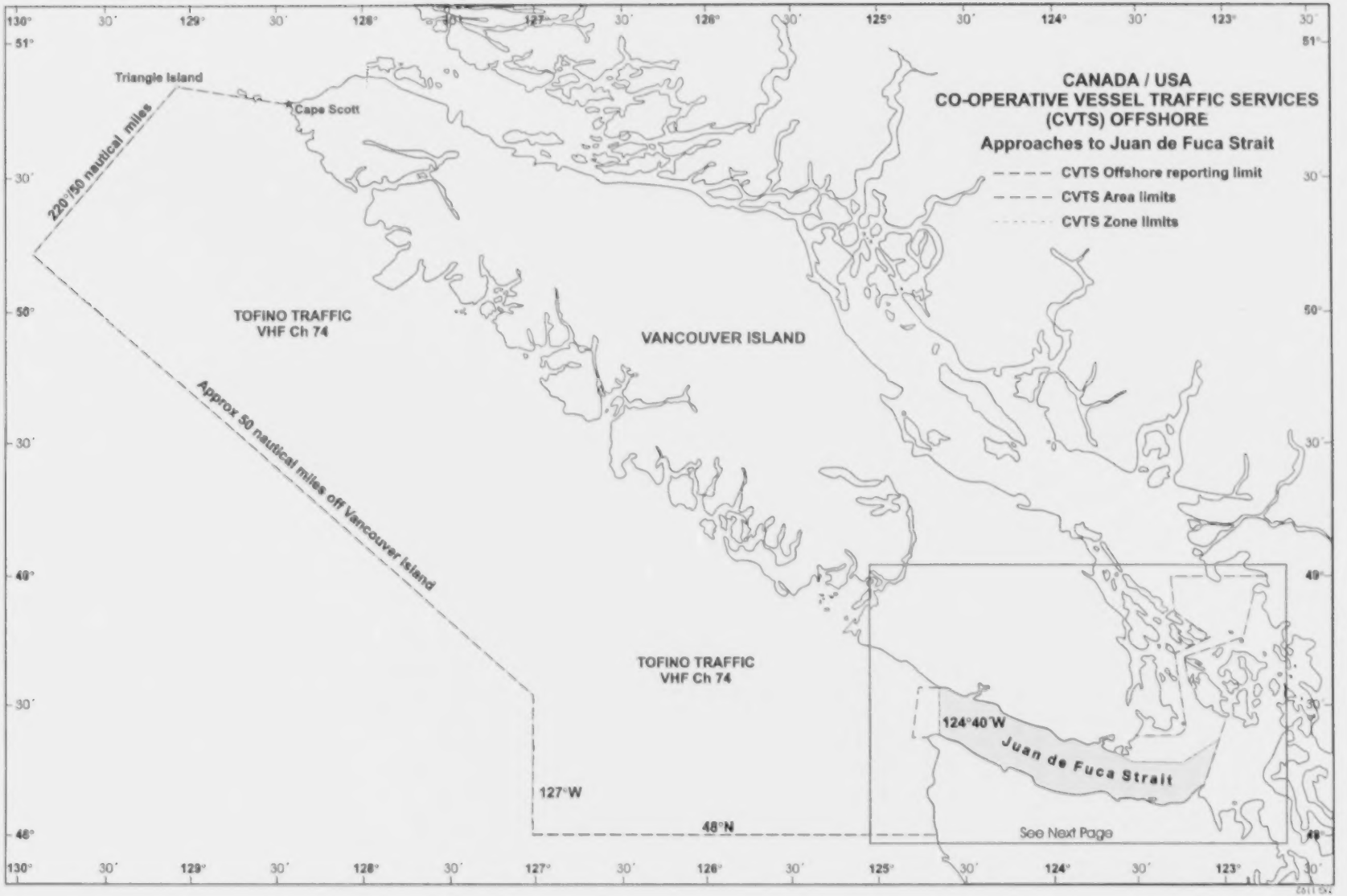
English Language

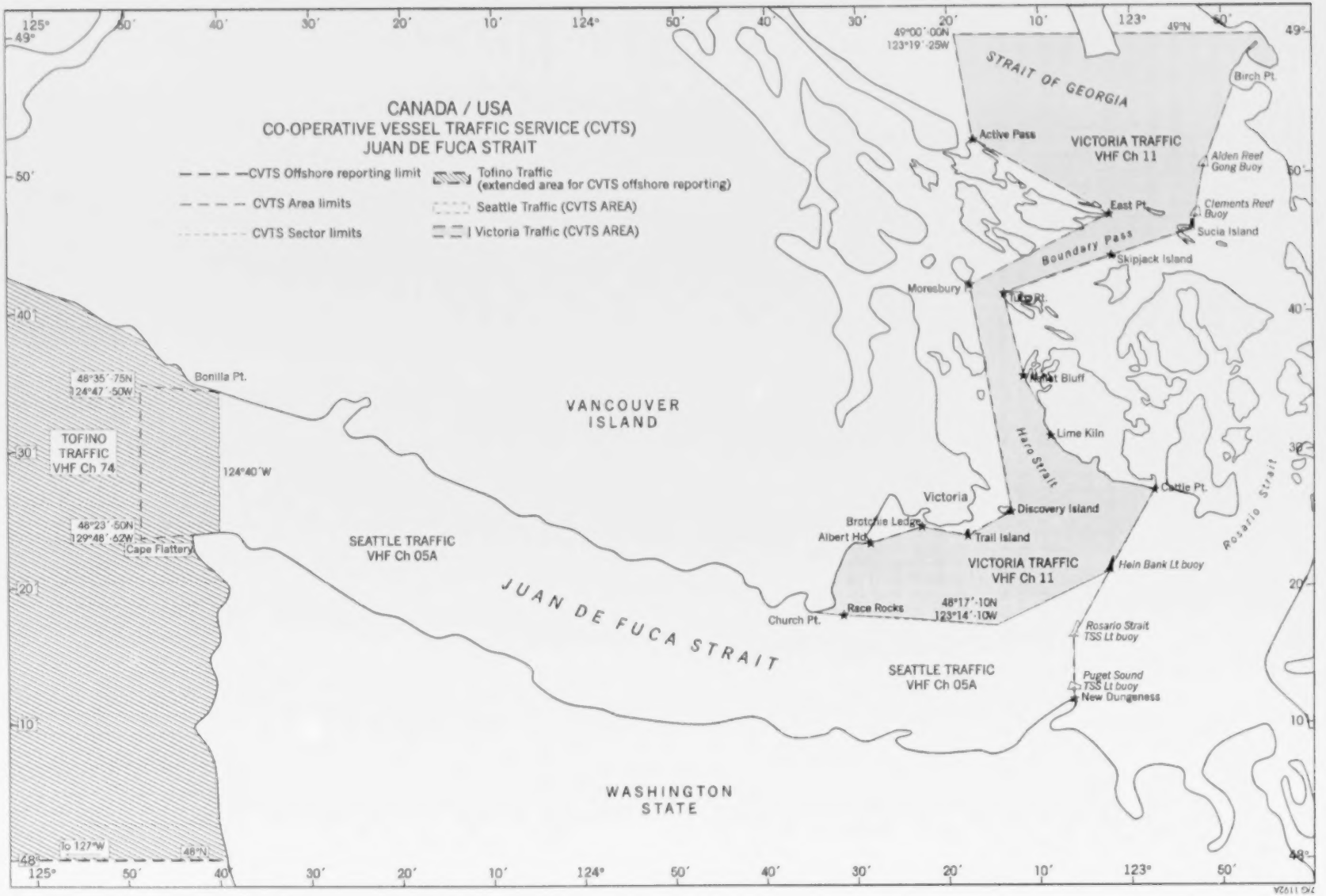
In accordance with the CVTS Agreement, mariners are cautioned that, as specified in international regulations, requirements and agreements, all communications within the CVTS area must be in clear unbroken English. At least one person capable of conducting clear unbroken two-way radio communication using the English language must be present on the bridge at all times within the CVTS area. This requirement is deemed essential in order to maintain an acceptable level of marine safety within CVTS waters.

Message Markers

Should language problems arise, communications may be preceded by the following message markers:

Question ..... a request for information
Answer ..... the reply to a previous question
Request ..... a request for action from others with respect to the ship
Information ..... observed facts
Intention ..... notice of immediate planned navigational actions
Warning ..... information about dangers
Advice ..... a recommendation to correct a hazardous condition
Instruction ..... a lawful order
Clearance ..... an authorization to proceed subject to conditions


CANADA / USA
CO-OPERATIVE VESSEL TRAFFIC SERVICES
(CVTS) OFFSHORE
Approaches to Juan de Fuca Strait
CVTS Offshore reporting limit
CVTS Area limits
CVTS Zone limits
Triangle Island
Cape Scott
220°/50 nautical miles
TOFINO TRAFFIC
VHF Ch 74
VANCOUVER ISLAND
Approx 50 nautical miles off Vancouver Island
TOFINO TRAFFIC
VHF Ch 74
124°40'W
Juan de Fuca Strait
127°W
48°N
See Next Page


CANADA / USA
CO-OPERATIVE VESSEL TRAFFIC SERVICE (CVTS)
JUAN DE FUCA STRAIT
CVTS Offshore reporting limit
CVTS Area limits
CVTS Sector limits
Tofino Traffic (extended area for CVTS offshore reporting)
Seattle Traffic (CVTS AREA)
Victoria Traffic (CVTS AREA)
49°00'·00N 123°19'·25W
STRAIT OF GEORGIA
Birch Pt.
Active Pass
VICTORIA TRAFFIC VHF Ch 11
Alden Reef Gong Buoy
East Pt.
Clements Reef Buoy
Sucia Island
Boundary Pass
Skipjack Island
Moresbury I.
Turn Pt.
Mount Bluff
Lime Kiln
Haro Strait
Victoria
Brotchie Ledge
Albert Hd.
Discovery Island
Trail Island
Cattle Pt.
Rosario Strait
Hein Bank Lt buoy
VICTORIA TRAFFIC VHF Ch 11
Race Rocks
48°17'·10N 123°14'·10W
Church Pt.
Rosario Strait TSS Lt buoy
Puget Sound TSS Lt buoy
New Dungeness
SEATTLE TRAFFIC VHF Ch 05A
JUAN DE FUCA STRAIT
SEATTLE TRAFFIC VHF Ch 05A
WASHINGTON STATE
VANCOUVER ISLAND
48°35'·75N 124°47'·50W
Bonilla Pt.
TOFINO TRAFFIC VHF Ch 74
124°40'W
48°23'·50N 129°48'·62W
Cape Flattery
to 127°W
48°N

ZONE DESCRIPTION

Western Canada

VTS Zones in Western Canada include all Canadian waters on the west coast of Canada as described in the VTS Zone Schedules of this Part and referred to in the *Vessel Traffic Services Zone Regulations.*

❖Arctic Canada

The Arctic Canada VTS Zone includes the waters adjacent to the mainland and islands of the Canadian arctic within the area enclosed by the sixtieth parallel of north latitude and the one hundred and forty-first meridian of west longitude.

It excludes MacKenzie Bay and Kugmallit Bay south of the parallel of 70° north latitude and east of the meridian of 139° west longitude.

ZONE APPLICATION

Western Canada - Offshore
With respect to the Western Canada VTS Zones, the *Vessel Traffic Services Zones Regulations* require a report to be made at least 24 hours before the ship enters a VTS Zone from seaward including Alaska, or as soon as possible where the estimated time of arrival at that VTS Zone is less than 24 hours after the ship departs from the last port of call, where the ship is:

a) of 500 tons gross tonnage or more;

b) engaged in towing or pushing a vessel, where the combined tonnage of the ship and the vessel being towed or pushed is 500 tons gross tonnage or more; or

c) carrying a pollutant or dangerous goods, or engaged in towing or pushing a vessel carrying a pollutant or dangerous goods as prescribed in the:

i) Oil Pollution Prevention Regulations;

ii) Pollutant Substances Regulations;

iii) Dangerous Goods Shipping Regulations;

iv) International Maritime Dangerous Goods Code (IMDG); and

v) Dangerous Chemicals and Noxious Liquid Substances Regulations.

Participation is mandatory; however, vessels between 300 and 500 tons, gross tonnage, are also encouraged to participate fully to receive the maximum benefit.

Western Canada - Local VTS Zones

For vessels within or about to enter a Western Canada VTS Zone, the *Vessel Traffic Services Zones Regulations* apply in respect of:

(a) every ship twenty metres or more in length;

(b) every ship engaged in towing or pushing any vessel or object, other than fishing gear, where

i) the combined length of the ship and any vessel or object towed or pushed by the ship is forty-five metres or more in length; or

(ii) the length of the vessel or object being towed or pushed by the ship is twenty metres or more in length;

For vessels within or about to enter a Western Canada VTS Zone, the *Vessel Traffic Services Zones Regulations* do not apply in respect of:

- a ship engaged in towing or pushing any vessel or object within a log booming ground;
- a pleasure yacht that is less than 30 metres in length; and
- a fishing vessel that is less than 24 metres in length and not more than 150 tons gross tonnage.

❖ **Arctic Canada - Local VTS Zone (NORDREG)**

With respect to the Arctic Canada VTS Zone (NORDREG) the provisions of this section apply to every ship of 300 tons, gross tonnage, or more. Participation is voluntary; however, mariners are encouraged to participate fully to receive the maximum benefit.

REPORTING REQUIREMENTS

Change in Information

A report shall be made whenever a significant change occurs in the information previously provided in any report made pursuant to the *Vessel Traffic Services Zones Regulations.*

Non-routine Reports

Pursuant to the *Vessel Traffic Services Zones Regulations* a report indicating the vessel's name, position and a description of the incident shall be made as soon as the master becomes aware of any of the following conditions

(i) the occurrence on board the ship of any fire;
(ii) the involvement of the ship in a collision, grounding or striking;
(iii) any defect in the ship's hull, main propulsion systems or steering systems, radars, compasses, radio equipment, anchors or cables;
(iv) any discharge or probable discharge of a pollutant from the ship into the water;
(v) another ship in apparent difficulty;
(vi) any obstruction to navigation;
(vii) any aid to navigation that is functioning improperly, damaged, off-position or missing;
(viii) the presence of any pollutant in the water;
(ix) the presence of a ship that may impede the movement of other ships; and
(x) any ice and weather conditions that are detrimental to safe navigation.

Notes:

(1) Items (vi), (vii) and (viii) are not required if the information has been previously promulgated by a Notice to Shipping.

(2) Mariners are encouraged to provide, on a voluntary basis, any information pertaining to charts and publications which may not be on board so that arrangements can be made to embark the necessary items.

Offshore Report

The *Vessel Traffic Services Zones Regulations* require a report to be made at least 24 hours before the ship enters a VTS Zone from seaward including Alaska, or as soon as possible where the estimated time of arrival at that VTS Zone is less than 24 hours after the ship departs from the last port of call.

Information Required

(a) the name of the ship;

(b) the radio call-sign of the ship;

(c) the name of the master of the ship;

(d) the position of the ship;

(e) the time (UTC) the ship arrived at the position;

(f) the course of the ship, if any;

(g) the speed of the ship, if any;

(h) the prevailing weather conditions;

(i) the estimated time (UTC) that the ship will enter the VTS Zone;

(j) the name of the VTS Zone the ship intends to enter;

(k) the destination of the ship;

(l) the estimated time (UTC) of arrival of the ship at the destination;

(m) the intended route of the ship;

(n) the name of the last port of call of the ship;

(o) the draught of the ship;

(p) any dangerous goods, listed by class, or pollutant, that is carried on board the ship or the vessel being towed or pushed by the ship;

(q) any defect in the ship's hull, main propulsion systems or steering systems, radars, compasses, radio equipment, anchors or cables;

(r) any discharge, or threat of discharge, into the water, of a pollutant from the ship or the vessel being towed or pushed by the ship, and any damage to the ship or vessel that may result in the discharge of a pollutant from the ship or vessel into the water;

(s) the name of the Canadian or United States agent of the ship; and

(t) the date of expiration of a certificate referred to in Article VII of the *International Convention on Civil Liability for Oil Pollution Damage, 1969/1992*, the International Oil Pollution Prevention Certificate, the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk, the Certificate of Fitness and the Certificate of Compliance, the ISM Safety Management Certificate and the ISM document of compliance, if any issued to the ship.

CVTS Advance Report

The CVTS Advance Report is a co-operative measure by the Canadian and United States Coast Guards to reduce the reporting burden on ships calling on our collective ports. This one report will satisfy the Canadian VTS Offshore reporting requirements and (the U.S. Notice of Arrival Report, and the State of Washington Advance Notice of Entry Report). All vessels 300 gross tons or greater including tugs and tows intending to enter the CVTS Zone from seaward, are required to comply with the CVTS Advance Report. For details refer to your ship's agent.

❖**Offshore/Advance Report Contact**

CVTS Advance Reports and/or Offshore Reports shall be sent:
Via INMARSAT telex 04352586 *CGTC VAS VCR*;
Via any Canadian Coast Guard MCTS Centre free of charge;
Directly to CVTS OFFSHORE by Fax: (604) 666-8453,
Directly to Vancouver MCTS Centre e-mail: MCTSRMIC@ATTMAIL.COM

Local VTS Zone Reports

With respect to the Western Canada VTS Zones, the *Vessel Traffic Services Zones Regulations* specify that the master of a ship shall report to a MCTS Officer in accordance with the following requirements.

Information Required

Dependent upon the reporting requirement the following information shall be required to be reported.

(a) the name of the ship;

(b) the radio call-sign of the ship;

(c) the position of the ship;

(d) the estimated time that the ship will enter the VTS zone;

(e) the destination of the ship;

(f) the estimated time that the ship will arrive at its destination;

(g) whether any pollutant or dangerous goods cargo is carried on board the ship or any vessel or object being towed or pushed by the ship;

(h) the estimated time that the ship will depart the berth; and

(i) the estimated time at which the ship will next arrive at a location requiring a report.

Entering a Zone

At least 15 minutes before a ship intends to enter a VTS zone, a report shall be made specifying the information listed in (a), (b), (c), (d), (e), (f) and (g).

Exception: Ships already in possession of a valid Traffic Clearance are not required to provide this report.

Arrival at a Calling-In-Point (CIP)

When a ship arrives at a CIP a report shall be made specifying the information listed in (a), (c) and (i).

Arrival at a berth

As soon as practicable after a ship arrives at a berth, a report shall be made specifying the information listed in (a) and (c).

Departure Manoeuvre

A departure manoeuvre is defined as an operation during which a vessel leaves a berth and gets safely underway;

Immediately before commencing a departure manoeuvre, a report shall be made specifying the information listed in (a), (b), (c), (e), (f), (g) and (h).

Immediately after completing the departure manoeuvre, a report shall be made specifying the information listed in (a), (c) and (i).

Manoeuvres

A traffic clearance is required 15 minutes prior to commencing any manoeuvre such as:

(i) a compass adjustment;

(ii) the calibration and servicing of navigational aids;

(iii) a sea trial;

(iv) a dredging operation;

(v) the laying, picking up and servicing of submarine cables; or any other manoeuvre that may be detrimental to safe navigation,.

Prior to commencing a manoeuvre a report shall be made specifying the information listed in (a) and (c), plus a description of the intended manoeuvre.

As soon as practical after the manoeuvre is completed, a report describing the manoeuvre just completed shall be made.

❖ NORDREG Zone Reports

NORDREG Zone reports shall be communicated either directly or to the nearest Canadian Coast Guard MCTS Centre. All times given in NORDREG Zone reports shall be Co-ordinated Universal Time (UTC).
Information Required

Dependent upon the reporting requirement, various elements of the following may be required to be reported.

(a) the name of the ship;
(b) the radio call sign of the ship;
(c) the name of the master of the ship;
(d) the position of the ship;
(e) the time the ship arrived at the position;
(f) the course of the ship, if any;
(g) the speed of the ship, if any;
(h) the prevailing weather conditions (including ice if applicable);
(i) the estimated time that the ship will enter the Arctic Canada VTS Zone;
(j) the estimated time that the ship will depart the berth;
(k) the destination of the ship;
(l) the estimated time of arrival of the ship at the destination;
(m) the route the ship intends to take through the Arctic Canada VTS Zone to arrive at the destination;
(n) the name of the last port of call of the ship;
(o) the draft of the ship;
(p) any dangerous goods, listed by class, or pollutant, that is carried on board the ship or a vessel being towed or pushed by the ship;
(q) revoked;
(r) any defect in the ship's hull, main propulsion systems or steering systems, radars, compasses, radio equipment, anchors or cables;
(s) any discharge, or threat of discharge, of a pollutant from the ship into the water, and any damage to the ship that may result in the discharge of a pollutant from the ship into the water;
(t) the name of the Canadian or United States agent of the ship; and
(u) the date of expiration of a certificate referred to in Article VII of the *International Convention on Civil Liability for Oil Pollution Damage, 1969/1992*, the International Oil Pollution Prevention Certificate, the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk, the Certificate of Fitness and the Certificate of Compliance, the ISM Safety Management Certificate and the ISM document of compliance, if any issued to the ship.

Search and Rescue authorities have requested that ships entering Canadian waters for the first time answer the following question. This information is only required to be supplied once and updated when the situation changes.

Is your vessel EPIRB equipped? If not, please supply the following information:

(i) number of crew and passengers;
(ii) number of lifeboats and life rafts plus make and capacity;
(iii) colour of hull and superstructure;
(iv) distinctive features.

❖Prior to Entering the Zone

A report containing the required information listed above, except item (j), but also including the following information:

i) ice class (type or Arctic class category), if applicable, and Classification Society;
ii) amount of oil on board (fuel and cargo), if such amount exceeds 453 m^3 and
iii) date of issue of Arctic Pollution Prevention Certificate, if carried and name of Classification Society;

shall be made a minimum of 24 hours prior to entering the zone, or as soon as practical where the estimated time of arrival of the ship at the zone is less than 24 hours after the time the ship departed from the last port of call.

❖Entering at Zone Boundary

A report containing the required information listed in (a), (b), and (d), shall be made immediately before the ship crosses the zone boundary when entering the zone.

❖Arrival at Berth

A report containing the required information listed in (a), (b), and (j), as well as the following information shall be made on arrival of the ship at a berth.:

i) port of arrival; and
ii) time of arrival;

❖Departing Berth

This report is not required where the ship is proceeding to another berth in the same port.

A report containing the required information listed in (a), (b), (h), (j), (k), (l), (m), (p), the amount of oil on board (fuel and cargo), if such amount exceeds 453m^3 (15,988ft^3) and any change to previously reported items (r), (s), (t), (u), shall be made not more than two hours and not less than one hour before departing a berth.

If the estimated time of departure changes by more than one hour, a report shall be made containing the revised estimated time of departure.

A report shall be made when the ship has departed the berth, giving the actual time of departure.

❖1600 UTC Report

A report containing the required information listed in (a), (b), (d) and (h) shall be made daily at 1600 UTC.

❖Exiting the Zone

A report containing the required information listed in (a), (b), (d) and (h), shall be made immediately before the ship crosses the seaward boundary.

Variations

Ferries and other vessels on regularly scheduled voyages may be exempted from making routine reports. Formal variations to reporting procedures will be granted only where alternate arrangements to provide essential information are made and where the equivalent procedure or practice is deemed to be as safe as that required in the regulations.

Formal variations may be obtained by submitting a written request to the appropriate Regional Director, Canadian Coast Guard.

In circumstances other than those described above, informal variations may be granted from time to time on a one time only basis by a MCTS Officer where the procedure or practice requested is deemed to be as safe as that required in the regulations.

❖CVTS OFFSHORE / NORDREG Report Contacts

CVTS OFFSHORE reports can be sent to:

Vancouver MCTS Centre
350 - 555 W. Hastings
Vancouver, B.C.
V6B 5G3

Telephone: (604) 666-6011
Facsimile: (604) 666-8453
Telex: 04352586
Telex Answerback: CGTC VAS VCR

NORDREG CANADA reports can be sent to:

*Iqaluit MCTS Centre
P.O. Box 189
IQALUIT, Nunavut
X0A 0H0

Telephone - (867) 979-5724
Facsimile - (867) 979-4236
Telex (Telefax) 063-15529
Telegraphic Identifier - NORDREG CDA IQL

*Note:

Operational from approximately mid-June to mid-December
Off season inquiries send to :

St. John's MCTS Centre
P.O. Box 5667
ST. JOHN'S, Newfoundland
A1C 5X1

Telephone - (709) 772-2083
Telex - 016-4530
Facsimile - (709) 772-5369
Telegraphic Identifier - CCGTC SNF

VESSEL TRAFFIC SERVICES ZONE SCHEDULES

PRINCE RUPERT VTS ZONE

SECTORS AND BOUNDARIES

Sector	Boundaries
1	All Canadian waters north of Vancouver Island between a line joining Triangle Island 50°52'00"N, 129°05'00"W; with Cape Caution light 51°09'50"N, 127°47'06"W; and the Alaska/British Columbia border, but not including those waters described in Sector 2.
2	All Canadian waters bounded by a line running from Bareside Point 53°54'12"N, 130°16'31"W; to Swede Point 53°53'16"N, 130°15'35"W. Then following the northern shoreline of Pitt Island to a position of 53°48'03"N, 129°58'31"W; thence to a position of 53°48'41".4N, 129°57'07".9W; thence northward following the mainland shore to a position of 54°09'38"N, 129°57'37"W; thence to a position of 54°11'53"N, 129°58'51"W; thence northward following the mainland shore to 54°37'57" N, 130°26'31"W; thence to a position of 54°38'02"N, 130°26'31"W; thence northward along the west shore of Maskelyne Island to Maskelyne Point 54°38'55"N, 130°26'42"W; thence to Wales Point 54°42'17"N, 130°28'33"W; thence westward along the shore of Wales Island to 54°42'06"N, 130°31'47"W; thence to a position of 54°42'27"N, 130°36'50"W; thence westward along the International Boundary to Cape Muzon light 54°39'48"N, 132°41'30"W; thence westward along the shore of Dall Island to Point Cornwallis light 54°42'12"N, 132°52'17"W; thence southward to Langara Point 54°15'23"N, 133°03'30"W; thence southward along the west coast of Langara Island to Lacy Island 54°13'18"N, 133°05'24"W; thence southward to Cape Knox on Graham Island 54°11'00"N, 133°05'00"W; thence eastward along Graham Island shoreline to Rose Spit Racon 54°11'12".5N, 131°38'43"W; thence south-eastward to Seal Rocks 54°00'00"N, 130°47'26"W; thence to Oval Point on Porcher Island 53°56'24"N, 130°43'15"W thence eastward following Porcher Island shoreline to Bareside Point.

IDENTIFICATION AND FREQUENCIES

Sector	Identifier	Channel	Frequency (MHz)
1	*"Prince Rupert Traffic"*	11	156.55
2	*"Prince Rupert Traffic"*	71	156.575

All times shall be given in Pacific Standard Time or Pacific Daylight Saving Time, whichever is in effect.

CALLING-IN-POINTS

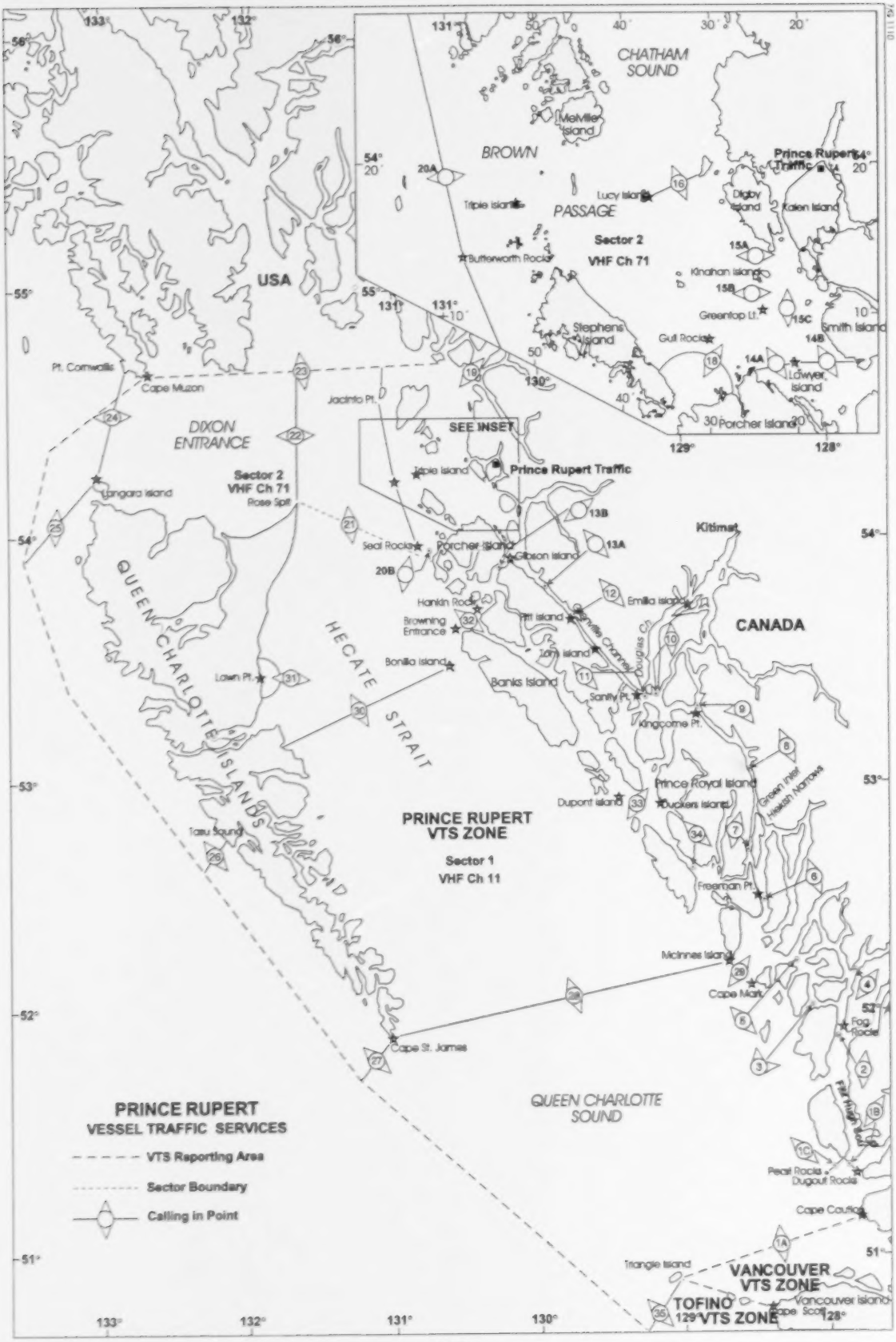
Number	Sector	Name	General Description & Conditions	Geographic Description
1A	Change	Cape Caution Triangle Island	A line joining Cape Caution light with Triangle Island	A line running from 51°09'50"N, 127°47'06"W; to 50°52'00"N, 129°05'00"W
1B	1	Dugout Rocks	A line joining Dugout Rocks light with Cape Calvert *Mariners bound for Fitz Hugh Sound shall report ETA Dugout Rocks*	A line running from 51°22'01.5"N, 127°48'23.5"W; to 51°25'04"N, 127°54'16"W
1C	1	Pearl Rocks	A line joining Pearl Rocks with the southern most of the Sorrow Islands and thence Cape Calvert *Mariners bound for Queen Charlotte Sound via North Passage shall report ETA Pearl Rocks*	A line running from 51°22'00"N, 128°00'12"W; to 51°24'33"N, 127°55'18"W; thence 51°25'04"N, 127°54'16"W
2	1	Fog Rocks	Fog Rocks light	A line running 090° - 270° (True) through 51°58'21"N, 127°55'02"W
3	1	Walker Island	Walker Island light Lama Passage	A line running 090° - 270° (True) through 52°05'58"N, 128°06'55"W
4	1	Barba Point	A line joining Barba Point and Boscowitz Point	A line running from 52°16'11"N, 127°44'55"W; to 52°16'06"N, 127°47'00"W
5	1	Idol Point	A line joining Idol Point light to Graven Point	A line running from 52°14'19"N, 128°16'31"W; to 52°15'27"N, 128°13'19"W
6	1	Freeman Point	Freeman Point light *If northbound, mariners shall report ETA Boat Bluff light and Ditmars Point* *Mariners shall advise if intending to transit Hiekish Narrows*	A line running 090° - 270° (True) through 52°33'11".5N, 128°29'18"W

Number	Sector	Name	General Description & Conditions	Geographic Description
7	1	Ditmars Point	Ditmars Point *If southbound, mariners shall report ETA Boat Bluff light and Freeman Point*	A line running 090° - 270° (True) through 52°43'48"N, 128°34'12"W
8	1	Griffin Point	Griffin Point light *If northbound, mariners shall report which side of Work Island they intend to transit* *If southbound, mariners shall advise if intending to transit Hiekish Narrows*	A line running 090° - 270° (True) through 53°03'56"N, 128°32'54"W
9	1	Kingcome Point	A line joining Kingcome Point light and Angler Cove *If southbound, mariners shall report which side of Work Island they intend to transit*	A line running from 53°17'57"N, 128°54'23"W; to 53°18'44"N, 128°53'17"W
10	1	Money Point	Money Point light *Mariners bound for Kitimat shall report an ETA for Emilia Island light*	A line running 090° - 270° (True) through 53°22'55"N, 129°09'50"W
11	1	Sainty Point	A line joining Sainty Point light and Yolk Point *If northbound, mariners shall report an ETA for Tom Island light and Pitt Island light*	A line running from 53°22'18"N, 129°18'40"W; to 53°21'47"N, 129°20'00"W
12	1	Pitt Island light	Pitt Island light *If southbound, mariners shall report an ETA for Tom Island light and Sainty Point light*	A line running 045° - 225° (True) through 53°42'00"N, 129°48'38"W
13A	Change	Baker Inlet	A line across Grenville Channel from Baker Inlet light	A line running 052° - 232° (True) through 53°48'41".4N, 129°57'07".9W

Number	Sector	Name	General Description & Conditions	Geographic Description
13B	Change	Swede Point	A line across Ogden Channel joining Bareside Point and Swede Point	A line joining 53°54'12"N, 130°16'31"W; and 53°53'16"N, 130°15'35"W
14A	2	Lawyer Islands	A line joining Hunt Point and Lawyer Islands	A line joining 54°06'11"N, 130°24'54"W; to 54°06'36"N, 130°20'12"W
14B	2	Genn Islands	A line joining Lawyer Islands and Hazel Point	A line joining 54°06'36", 130°20'12"W; to 54°07'03"N, 130°14'39"W
15A	2	Petrel Rock	A line from Digby Island to West Kinahan Island	A line running 180° (True) from 54°15'33"N, 130°25'00"W; to 54°12'30"N, 130°25'00"W
15B	2	Greentop Islet	A line from West Kinahan Island to a position near Greentop Islet	A line running from 54°12'30"N, 130°25'00"W; to 54°10'40"N, 130°25'00"W
15C	2	Holland Rock	A line from a position near Greentop Islet to Kitson Island	A line running from 54°10'40"N, 130°25'00"W; to 54°10'40"N, 130°19'00"W
16	2	Lucy Islands	A line from Lucy Islands light to Tugwell Island	A line running from 54°17'46"N, 130°36'25"W; to 54°19'10"N, 130°30'54"W
17	2	Pillsbury Point	A line joining Pillsbury Point and Tobey Point	A line running from 54°17'58"N, 130°21'05"W; to 54°17'58"N 130°22'55"W
18	2	Edye Passage	A 3 NM arc centered on Table Point	An arc centered on 54°03'49"N, 130°31'55"W; Radius 3 nautical miles bearing from seaward 137° - 233° (True)
19	Change	Wales Island	A line joining Wales Point to Maskelyne Point	A line running from 54°42'17"N, 130°28'33"W; to 54°38'55"N, 130°26'42"W
20A	2	Butterworth Rocks	A line from Jacinto Point light to Butterworth Rocks light thence to Seal Rocks light. *Mariners shall report routing if not using Brown Passage*	A line running from 54°34'47"N, 131°04'30"W; to 54°14'08"N, 130°58'30"W thence 54°00'00"N, 130°47'26"W
20B	Change	Seal Rocks	A line joining Seal Rocks light to Oval Point on Porcher Island	A line running from 54°00'00"N, 130°47'26"W; to 53°56'24"N, 130°43'15"W

Number	Sector	Name	General Description & Conditions	Geographic Description
21	Change	Rose Spit Seal Rocks	A line joining Rose Spit Racon with Seal Rock light	A line running from 54°11'12".5N, 131°38'43"W; to 54°00'00"N, 130°47'26"W
22	2	Rose Spit	A line extending 000° (True) from Rose Spit Racon to the International Boundary	A line running 000° (True) from 54°11'12".5N, 131°38'43"W; to the International Boundary
23	1	International Boundary Dixon Entrance	A line following the International Boundary between Alaska, USA and British Columbia, Canada between Cape Muzon light and Wales Island. *Mariners shall report whether their route is through Holliday Passage, Oriflamme Passage or Main Passage when transiting Chatham Sound*	A line running from 54°39'48"N, 132°41'30"W; to 54°42'06"N, 130°31'47"W
24	Change	Langara Point Point Cornwallis	A line joining Langara Point light and Point Cornwallis light	A line running from 54°15'23"N, 133°03'30"W; to 54°42'12"N, 132°52'17"W
25	1	Langara Island	A line extending 220° (True) from Langara Point light to the limit of the Territorial Sea	A line running 220° (True) from 54°15'23"N, 133°03'30"W; to the limit of the Territorial Sea
26	1	Tasu Sound	A line extending 220° (True) from Davidson Point light to the limit of the Territorial Sea *Mariners shall report at Davidson Point entering or exiting Tasu Sound*	A line running 220° (True) from 52°44'32"N, 132°06'42"W; to the limit of the Territorial Sea
27	1	Cape St. James	A line extending 220° (True) from Cape St. James light to the limit of the Territorial Sea	A line running 220° (True) from 51°56'10"N, 131°00'52"W; to the limit of the Territorial Sea
28	1	McInnes Island Cape St. James	A line joining McInnes Island light and Cape St. James light	A line running from 52°15'42"N, 128°43'13"W; to 51°56'10"N, 131°00'52"W
29	1	Cape Mark McInnes Island	A line from Cape Mark light to McInnes Island light	A line running from 52°08'59"N, 128°32'18"W; to 52°15'42"N, 128°43'13"W

Number	Sector	Name	General Description & Conditions	Geographic Description
30	1	Bonilla Island Sandspit	A line joining Bonilla Island sector light and Sandspit aeronautical beacon	A line running from 53°29'34"N, 130°38'09"W; to 53°15'10"N, 131°48'48"W
31	1	Lawn Point	A 3 NM arc centered on Lawn Point	An arc centered on 53°25'29".7N, 131°54'50".2W; Radius 3 nautical miles, bearing from seaward 180° -
32	1	White Rocks	A line joining Browning Entrance light to Hankin Rock light	A line running from 53°38'05"N, 130°33'48"W; to 53°42'28"N, 130°24'36"W
33	1	Duckers islands	A line joining Duckers Islands light to Dupont Island light *If northbound, mariners shall report whether route is through Squally Channel or Whale Channel*	A line running from 52°55'31".4N, 129°11'28".5W; to 52°56'23".3N,
34	1	Wilson Rock	A line across Laredo Channel through Wilson Rock	A line running 232° - 052° (True) through 52°40'00"N, 128°57'55"W
35	Change	Triangle Island	A line extending 220° (True) from Triangle Island to the limit of the Territorial Sea	A line running 220° (True) from 50°52'00"N, 129°05'00"W; to 50°42'11"N, 129°18'00"W


CHATHAM SOUND
Melville Island
BROWN PASSAGE
Prince Rupert Traffic
Lucy Island
Digby Island
Kaien Island
Triple Islands
Butterworth Rocks
Sector 2
VHF Ch 71
Kinahan Island
Greentop Lt.
Smith Island
Stephens Island
Gull Rocks
Lawyer Island
Porcher Island
USA
Pt. Cornwallis
Cape Muzon
Jacinto Pt.
SEE INSET
DIXON ENTRANCE
Sector 2
VHF Ch 71
Rose Spit
Langara Island
Triple Island
Prince Rupert Traffic
Seal Rocks
Porcher Island
Gibson Island
Kitimat
CANADA
Hankin Rock
Browning Entrance
Ptt Island
Emilia Island
Douglas Ch.
White Channel
Zam Island
Bonilla Island
Lawn Pt.
Banks Island
Sandy Pt.
Kingcome Pt.
QUEEN CHARLOTTE ISLANDS
HECATE STRAIT
Dupont Island
Prince Royal Island
Quakers Islands
Green Inlet
Hakish Narrows
PRINCE RUPERT VTS ZONE
Sector 1
VHF Ch 11
Tasu Sound
Freeman Pt.
McInnes Island
Cape Mark
Fog Rocks
Cape St. James
QUEEN CHARLOTTE SOUND
Pearl Rocks
Dugout Rocks
Cape Caution
Triangle Island
VANCOUVER VTS ZONE
TOFINO VTS ZONE
Vancouver Island
Cape Scott
PRINCE RUPERT
VESSEL TRAFFIC SERVICES
VTS Reporting Area
Sector Boundary
Calling in Point

TOFINO VTS ZONE

SECTOR AND BOUNDARIES

Sector	Boundaries
1	Excluding those United States waters within that portion of the Canada/US CVTS administered by the Tofino MCTS Centre, all Canadian waters contained within the area bounded by a line drawn from: 48°28'36"N 124°40'00"W to 48°34'58"N 124°40'00"W thence following the shoreline to 48°40'00"N 124°51'00 "W to 48°40'11".5N 124°51'29"W thence following the shoreline to 48°43'18"N 125°05'54"W to 48°47'16"N 125°12'59".5W thence following the shoreline to 48°53'03"N 125°04'24"W to 48°56'00"N 125°01'50".5W thence following the shoreline to 48°56'51"N 125°00'02".5W to 48°57'28"N 124°59'15"W thence following the shoreline to 49°14'27"N 124°48'46"W to 49°14'27"N 124°50'13".5W thence following the shoreline to 49°04'13".5N 124°51'16"W to 49°03'20".5N 124°51'44"W thence following the shoreline to 48°59'03"N 124°57'54"W to 48°58'41"N 124°59'34"W thence following the shoreline to 48°57'19"N 125°01'50"W to 48°57'57"N 125°04'50".5W to 48°59'06"N 125°09'39".5W to 48°58'48"N 125°10'57"W thence following the shoreline to 49°00'59".5N 125°18'39"W to 49°01'54"N 125°19'26".5W thence following the shoreline to 48°55'18"N 125°30'29"W to 48°55'18"N 125°32'06".5W thence following the shoreline to 49°05'41"N 125°53'18"W to 49°17'03"N 126°13'44"W to 49°23'00"N 126°32'34"W to 49°44'57"N 126°58'54"W to 49°51'35"N 127°08'56"W to 49°59'49"N 127°27'06".5W to 50°04'48"N 127°48'47" thence following the shoreline to 50°13'14"N 127°47'54"W to 50°19'28"N 127°58'26"W thence following the shoreline to 50°21'09"N 127°59'27".5W to 50°26'38"N 128°02'43".5W to 50°28'11"N 128°06'05"W thence following the shoreline to 50°38'23".5N 128°19'35"W to 50°40'15"N 128°21'40"W thence following the shoreline to 50°46'57"N 128°25'32"W to 50°52'00"N 129°05'00"W thence following a line 220° (True) to the limit of the Territorial Sea 50°42'11"N 129°18'00"W thence following the Territorial Sea boundary south-eastward to intersect the International Boundary at 48°28'36"N 124°40'00"W thence a line northward to the Canadian shoreline at

IDENTIFICATION AND FREQUENCIES

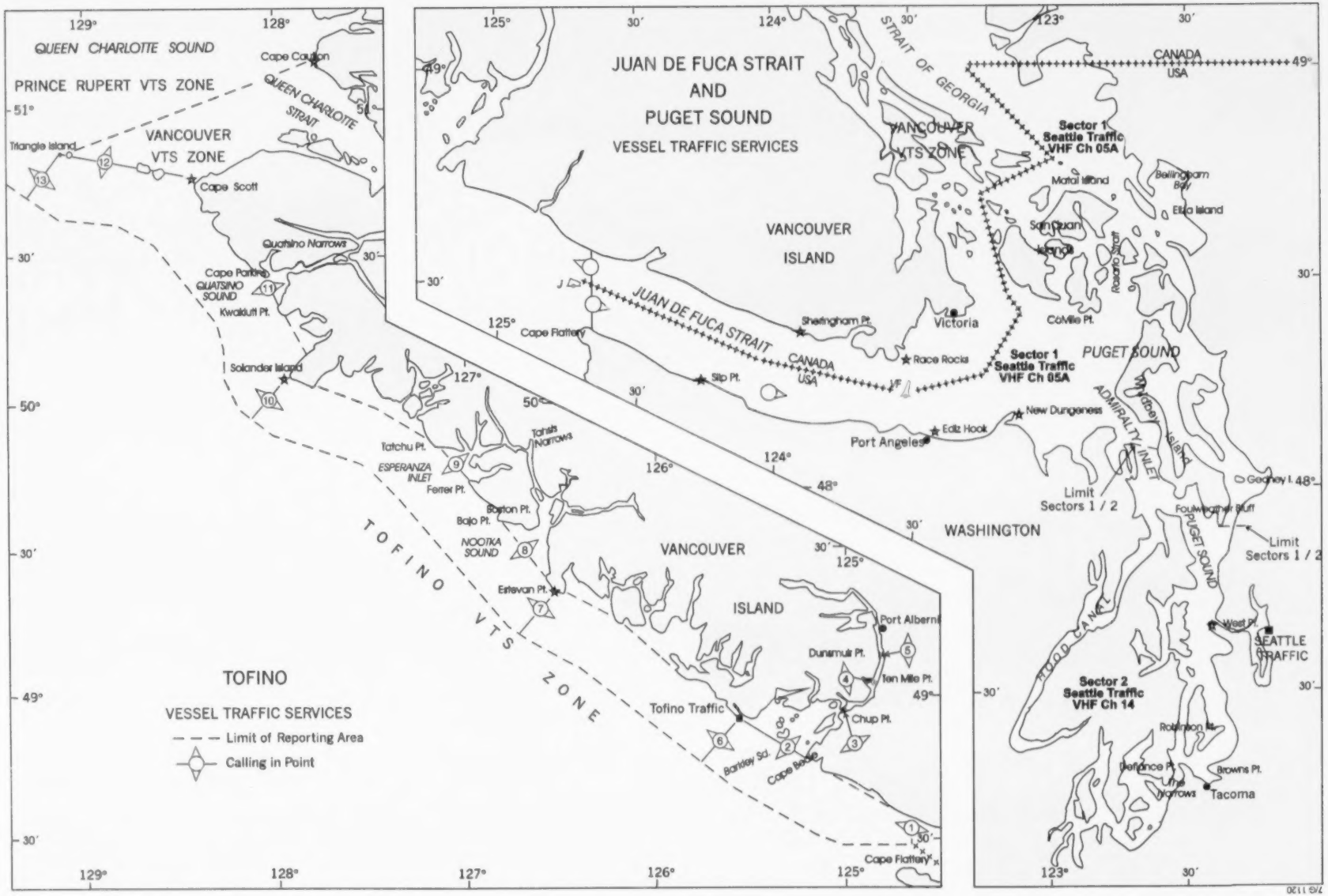
Sector	Identifier	Channel	Frequency (MHz)
1	*"Tofino Traffic"*	74	156.725

All times shall be given in Pacific Standard Time or Pacific Daylight Saving Time whichever is in effect.

CALLING-IN-POINTS

Number	Sector	Name	General Description & Conditions	Geographic Description
1	1	Zone Limit	A line running north along the meridian 124°40'00"W from the International Boundary to the Vancouver Island shoreline *Administered by Seattle and Tofino Traffic (CVTS)*	A line running north from 48°28'36"N, 124°40'00"W; to 48°34'58"N,
2	1	Cape Beale	A line joining Cape Beale light with Amphitrite Point light. *Mariners shall indicate whether their course is through Trevor Channel, Imperial Eagle Channel or Loudoun Channel.*	A line joining 48°47'13"N, 125°12'51"W; to 48°55'17"N,
3	1	Chup Point	A line joining Chup Point with Mutine Point	A line joining 48°57'20"N, 125°01'37"W; to 48°56'33"N,
4	1	Ten Mile Point	A line extending 256° (True) from Ten Mile Point light to the opposite shore of Alberni Inlet	A line extending 256° (True) from 49°03'34"N, ; to 49°03'20". 5N, 124°51'44"W
5	1	Dunsmuir Point	A line extending 090° (True) from Dunsmuir Point light to the opposite shore of Alberni Inlet	A line extending 090° (True) from 49°09'16"N, 124°48'26"W; to 49°09'16"N, 124°47'42"W
6	1	Amphitrite Point	A line extending 220° (True) from Amphitrite Point light to the limit of the Territorial Sea	A line extending 220° (True) from 48°55'17"N, 125°32'23"W; to 48°46'06"N, 125°44'02"W
7	1	Estevan Point	A line extending 220° (True) from Estevan Point light to the limit of the Territorial Sea	A line extending 220° (True) from 49°23'00"N, 126°32'32"W; to 49°13'47"N, 126°44'25".5W
8	1	Nootka Sound	A line joining Estevan Point light and Bajo Point	A line joining 49°23'00"N, 126°32'32"W; to 49°37'06"N,
9	1	Esperanza Inlet	A line joining Ferrer Point and Tatchu Point	A line joining 49°44'57"N, 126°58'54"W; to 49°51'35"N,

Number	Sector	Name	General Description & Conditions	Geographic Description
10	1	Solander Island	A line extending 220° (True) from Solander Island light to the limit of the Territorial Sea	A line extending 220° (True) from 50°06'40".5N, 127°56'17"W; to 49°57'26"N, 128°08'16"W
11	1	Kains Island (Quatsino Sound)	A line joining Kwakiutl Point and Cape Parkins	A line joining 50°21'09"N, 127°59'27".5W; to 50°26'38"N,
12	1	Cape Scott Triangle Island	A line extending 281° (True) from Cape Scott light, passing through Cox and Lanz Islands to Triangle Island	A line extending 281° (True) from 50°46'57"N, 128°25'32"W; to 50°52'00"N, 129°05'00"W
13	1	Zone Limit	A line extending 220° (True) from Triangle Island to the limit of the Territorial Sea	A line extending 220° (True) from 50°52'00"N, 129°05'00"W; to 50°42'11"N, 129°18'00"W


QUEEN CHARLOTTE SOUND
PRINCE RUPERT VTS ZONE
QUEEN CHARLOTTE STRAIT
VANCOUVER VTS ZONE
Cape Caution
Triangle Island
Cape Scott
Quatsino Narrows
Cape Parkins
QUATSINO SOUND
Kwakiutl Pt.
Solander Island
JUAN DE FUCA STRAIT AND PUGET SOUND VESSEL TRAFFIC SERVICES
STRAIT OF GEORGIA
CANADA
USA
VANCOUVER VTS ZONE
Sector 1
Seattle Traffic
VHF Ch 05A
Mayne Island
Bellingham Bay
Ellis Island
San Juan
Roche Harbor
VANCOUVER ISLAND
JUAN DE FUCA STRAIT
Sheringham Pt.
Victoria
Race Rocks
Cape Flattery
Slip Pt.
Colville Pt.
PUGET SOUND
Sector 1
Seattle Traffic
VHF Ch 05A
New Dungeness
Edlz Hook
Port Angeles
Whidbey Island
ADMIRALTY INLET
Gedney I.
Foulweather Bluff
Limit
Sectors 1 / 2
WASHINGTON
Limit
Sectors 1 / 2
PUGET SOUND
Tatchu Pt.
Tatoosh Narrows
ESPERANZA INLET
Ferrer Pt.
Boston Pt.
Bajo Pt.
NOOTKA SOUND
Estevan Pt.
TOFINO VTS ZONE
VANCOUVER ISLAND
Port Alberni
Dunsmuir Pt.
Ten Mile Pt.
Chup Pt.
Tofino Traffic
Barkley Sd.
Cape Beale
Cape Flattery
TOFINO
VESSEL TRAFFIC SERVICES
Limit of Reporting Area
Calling in Point
HOOD CANAL
West Pt.
SEATTLE TRAFFIC
Sector 2
Seattle Traffic
VHF Ch 14
Robinson Pt.
Defiance Pt.
Browns Pt.
Lions Narrows
Tacoma

VANCOUVER VTS ZONE

SECTORS AND BOUNDARIES

Sector	Boundaries
1	All Canadian waters north of and included within a line from the shoreline of Vancouver Island at 48°34'58"N, 124°40'00"W; southward along the meridian of longitude 124°40'00"W, to a point which intersects the International Boundary; thence following the International Boundary eastward and northward through the waters known as the Strait of Juan de Fuca, Haro Strait, Boundary Passage, and the Strait of Georgia to a point which intersects the Canadian shoreline at 49°00'00"N, 123°05'20"W; thence to Roberts Bank light 49°05'16"N, Sandheads light 49°06'23"N, 123°18'04"W; thence to the Iona breakwater light 49°12'18"N,123°15'50"W; thence 270° (True) 6.6 nautical miles to 49°12'18"N, 123°25'53"W; thence 000° (True) 8.15 nautical miles to Cape Roger Curtis light 49°20'24"N, 123°25'53"W; thence 303° (True) 4.8 nautical miles to Gower Point 49°23'01"N, 123°32'06"W; thence following the shoreline to a line joining Reception Point light 49°28'15".9N, 123°53'12"W; to Merry Island light 49°28'03".5N, 123°54'40"W; to Ballenas Island light 49°21'02"N, 124°09'32"W; to Cottam Point 49°18'57"N, 124°12'45"W.
2	All Canadian waters of the south or main arm of the Fraser River east of the Sandheads light 49°06'23"N, 123°18'04"W; to a line running 090° (True) from Shoal Point 49°11'45"N, 122°54'51"W., to the opposite south shore.
3	All Canadian waters contained north and east of a line from the Iona breakwater light, 49°12'18"N, 123°15'50"W; thence 270° (True) 6.6 nautical miles to 49°12'18"N, 123°25'53"W; thence 000° (True) 8.15 nautical miles to Cape Roger Curtis light 49°20'24"N, 123°25'53"W; thence 303° (True) 4.8 nautical miles to Gower Point 49°23'01"N, Howe Sound and Burrard Inlet.
4	All Canadian waters bounded on the south by a line from Reception Point light, 49°28'15" Merry Island light 49°28'03".5N,123°54'40"W; to Ballenas Island light 49°21'02"N,124°09'32"W; to Cottam Point 49°18'57"N,124°12'45"W; and bounded on the north by a line from Cape Scott light 50°46'57"N, 128°25'32"W; to 50°52'00"N, 129°05'00"W; to Cape Caution light 51°09'50"N, 127°47'06"W.

IDENTIFICATION AND FREQUENCIES

Sector	Identifier	Channel	Frequency (MHz)
1	*"Seattle Traffic" (CIP 1 and 3 only)*	05A	156.25
1	*"Victoria Traffic"*	11	156.55
2	*"Victoria Traffic"*	74	156.725
3	*"Vancouver Traffic"*	12	156.6
4	*"Comox Traffic"*	71	156.575

All times shall be given in Pacific Standard Time or Pacific Daylight Saving Time whichever is in effect.

SPECIAL OPERATING PROCEDURES

Outbound Vessels at Brotchie Ledge

Pilots are requested to advise *Victoria Traffic* of the outbound vessel's ETA Race Rocks, when possible.

Point Grey/Point Atkinson

Inbound vessels will initiate a broadcast at a line joining Point Grey/Point Atkinson indicating an ETA for First Narrows. (Vancouver Traffic will only respond if there is traffic to report).

CALLING-IN-POINTS

Number	Sector	Name	General Description & Conditions	Geographic Description
1	1	Zone Limit	A line running north along the meridian 124°40'00"W from the International Boundary to the Vancouver Island shoreline *Administered by Seattle and Tofino Traffic (CVTS)*	A line running north from 48°28'36"N, 124°40'00"W; to 48°34'58"N,
3	Change	Race Rocks	A line running 090° -270° (True) through Race Rocks light. *Administered by Seattle and Victoria Traffic (CVTS)*	A line running 090° - 270° (True) through 48°17'54"N, 123°31'54"W
4	1	Buoy "VH"	A line running 000° -180° (True) through buoy "VH"	A line running 000° -180° (True) through 48°22'32"N, 123°23'29"W
5	Change	Hein Bank	A line joining Hein Bank light and bell buoy with Cattle Point light, San Juan Island. *Administered by Seattle & Victoria Traffic (CVTS)*	A line running from 48°22'00"N, 123°02'01"W, to 48°27'03"N,
6	1	Turn Point	3 NM before reaching Turn Point light.	A circle centered on 48°41'20"N, 123°14'10"W, Radius 3 nautical miles.
7	1	East Point	A line joining East Point light, Saturna Island with Patos Island light	A line running from 48°47'00"N, 123°02'42"W, to 48°47'24"N,

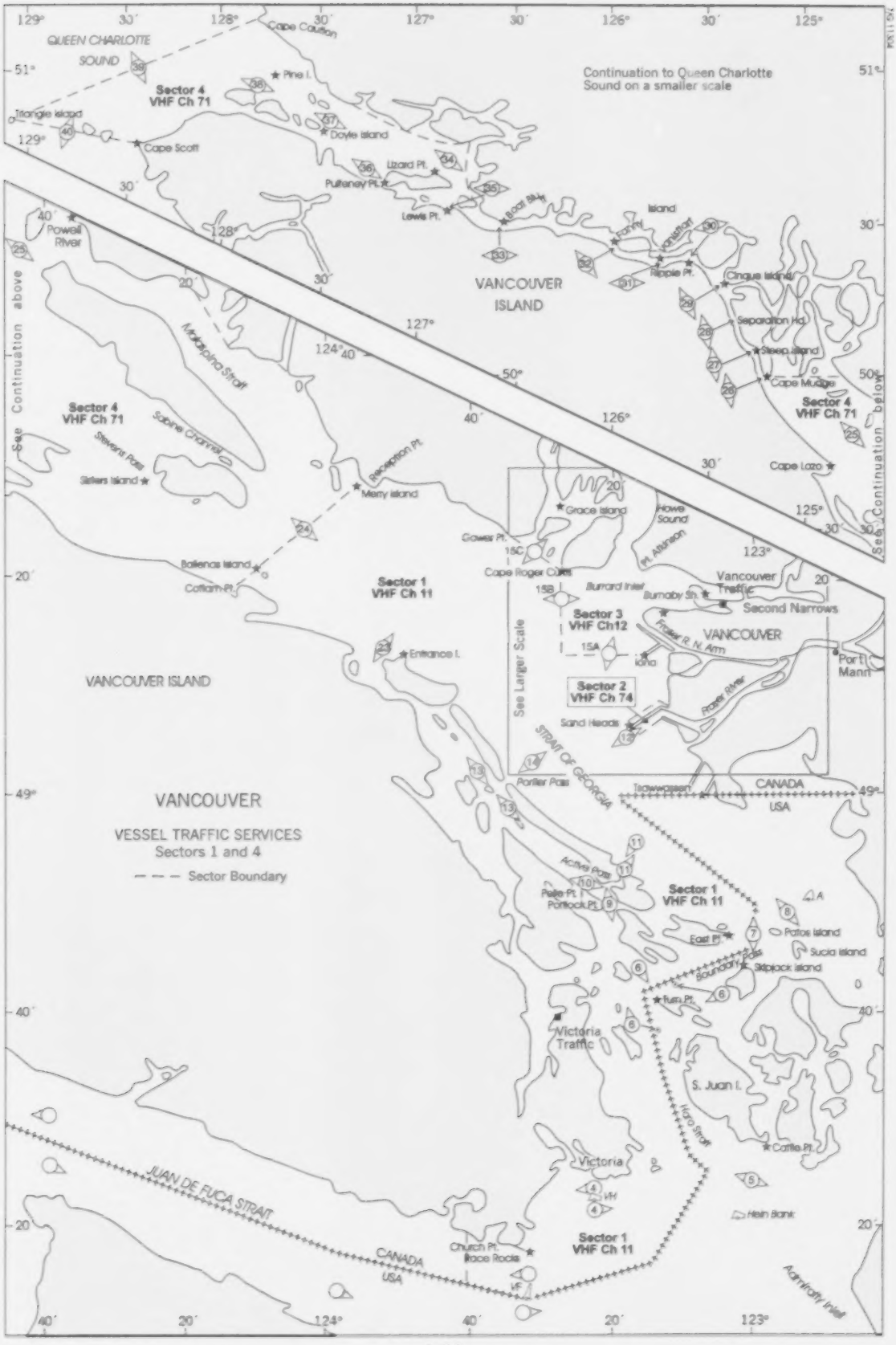
Number	Sector	Name	General Description & Conditions	Geographic Description
8	Change	Patos Island	A line joining, Patos Island light with Alden Bank light and gong buoy "A". *Administered by Seattle & Victoria Traffic (CVTS).*	A line running from 48°47'24"N, 122°58'13"W, to 48°50'24"N,
9	1	Portlock Point	At Portlock Point.	A line running 090° - 270° (True) through 48°49'41"N, 123°21'02"W
10	1	Peile Point	At Peile Point light.	A line running 045° - 225° (True) through 48°51'00"N, 123°24'14"W
11	1	Active Pass	Approaching from the Strait of Georgia, 3NM Northeast of Georgina Point light. Entering Strait of Georgia when clear of Active Pass.	An arc centered on 48°52'24".5N, 123°17'24".5W, Radius 3 nautical miles.
12	Change	Sandheads	At Sandheads light.	A line running 000° - 180° (True) through 49°06'23"N, 123°18'04"W
12A	2	Woodward Island (Crown Forest)	At Woodward Island light at N.E. end of Island.	A line running 000° - 180° (True) through 49°06'23".5N, 123°07'29".5W
12B	2	La Farge	At La Farge Cement Plant	A line running 157° - 337° (True) through 49°09'16".5N, 123°00'15"W
12C	Change	Shoal Point	At Shoal Point	A line running 090° - 270° (True) through 49°11'45"N, 122°54'51"W
13	1	West Porlier Pass	3 NM before entry to or after exit from Porlier Pass	An arc centered on Virago Rock Sector light LL. 289.3 49°00'46".5N , 123°35'29".5W Radius 3 nautical miles on a line of bearing from seaward 350° - 130° (True).
14	1	East Porlier Pass	3 NM before entry to or after exit from Porlier Pass.	An arc centered on Virago Rock Sector light LL. 289.3 49°00'46".5N, 123°35'29".5W Radius 3 nautical miles on a line of bearing from seaward 180° - 265° (True).

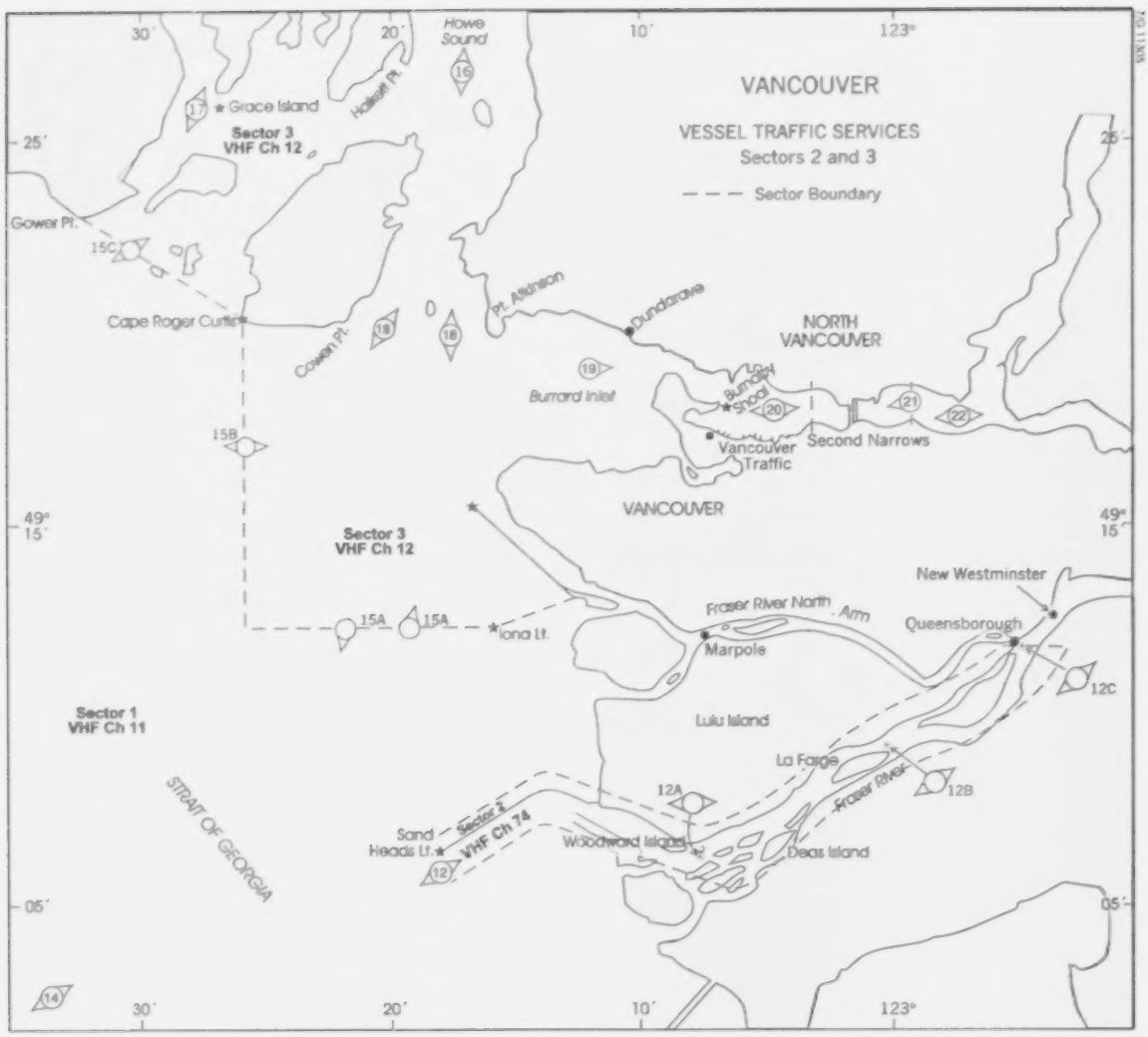
Number	Sector	Name	General Description & Conditions	Geographic Description
15A	Change	Iona	A line due west of the Iona Breakwater light intersecting with Cape Roger Curtis line (15B).	A line running from 49°12'18"N, 123°15'50"W, to 49°12'18"N,
15B	Change	Cape Roger Curtis	A line due south of Cape Roger Curtis intersecting with Iona Breakwater light line (15A).	A line running from 49°12'18"N, 123°25'53"W, to 49°20'24"N,
15C	Change	Gower Point	A line joining Cape Roger Curtis and Gower Point.	A line running from 49°20'24"N, 123°25'53"W, to 49°23'01"N,
16	3	Halkett Point	A line joining Halkett Point and the mainland at a point south of Lions Bay	A line running 090° - 270° (True) from 49°26'43"N, 123°19'12"W, to the mainland shoreline.
17	3	Grace Island	A line joining Grace Island light and the mainland at a point south of Langdale.	A line running 090° - 270° (True) from 49°25'50"N 123°26'48"W, to the mainland shoreline.
18	3	Cowan Point Point Atkinson	A line joining Cowan Point light on Bowen Island with Point Atkinson light on the mainland.	A line running from 49°20'08".5N, 123°21'34".5W, to 49°19'50"N,
19	3	Dundarave	2 NM west of Lions Gate Bridge. *Eastbound only report*	A line running 000° - 180° (True) through buoy "QB" 49°19'02".5N, 123°12'00"W
20	3	Vanterm	A line joining the west end of Vancouver Ocean Terminals with the east end of Burrard Yarrows Corporation Dry Dock. *Outbound vessel traffic will be given First Narrows advisory at Vanterm (CIP 20)* *Vessel traffic departing west of CIP 20 will be given First Narrows advisory on departure.* *Outbound vessels broadcast position at Burnaby Shoal. An updated traffic advisory will be given as required.*	A line running 358° - 178° (True) from 49°17'23"N, 123°04'33"W, to 49°18'21"N, 123°04'37"W

Number	Sector	Name	General Description & Conditions	Geographic Description
21	3	Berry Point	A line running 000° -180° (True) from Berry Point light to intersect the opposite north shoreline. *Westbound only report.*	A line running 000° - 180° (True) from 49°17'43"N, 122°59'09"W
22	3	Roche Point	At Roche Point light.	A line running 000° - 180° (True) through 49°18'02".5N, 122°57'17"W
23	1	Entrance Island Five Fingers Island	A line joining Entrance Island light and Five Fingers Island.	A line running from 49°12'34"N, 123°48'25"W, to 49°13'53"N,
24	Change	Ballenas Island Merry Island Welcome Passage	A line joining Ballenas Island light and Merry Island light; thence Reception Point light. *When northbound, mariners shall indicate whether their route is through* • *Malaspina Strait,* • *Sabine Channel,* • *Stevens Passage or* • *West of Sisters Island..*	A line running from 49°21'02"N, 124°09'32"W, to 49°28'03".5N, 123°54'40"W, to 49°28'15".9N, 123°53'12"W
25	4	Cape Lazo Powell River	A line joining Cape Lazo light and Powell River Breakwater South Entrance South light. *When southbound, mariners shall indicate whether their route is through* • *Malaspina Strait,* • *Sabine Channel,* • *Stevens Passage or* • *West of Sisters Island.*	A line running from 49°42'24".5N, 124°51'41".5W, to 49°51'46".5N,
26	4	Cape Mudge	At Cape Mudge light. *If northbound, mariners shall report ETA for Steep Island and Maud Island light.*	A line running 090° - 270° (True) through 49°59'56"N, 125°11'38"W

Number	Sector	Name	General Description & Conditions	Geographic Description
27	4	Steep Island	At Steep Island light. *If northbound,, mariners shall report ETA for Separation Head and update Maud Island light ETA if any change.*	A line running 050° - 230° (True) through 50°04'45"N, 125°15'06"W
28	4	Separation Head	At Separation Head. *If southbound, mariners shall report ETA for Steep Island and update Maud Island light ETA if any change*	A line running 090° - 270° (True) through 50°10'51"N, 125°21'02"W
29	4	Cinque Island	At Cinque Island light. *If southbound, mariners shall report ETA for Separation Head and Maud Island light.*	A line running 090° - 270° (True) through 50°17'44"N, 125°23'59".5W
30	4	Ripple Point	Ripple Point light.	A line running 000° - 180° (True) through 50°22'05"N, 125°34'42"W
31	4	Vansittart Point	Vansittart Point light.	A line running 000° - 180° (True) through 50°22'37"N, 125°44'31"W
32	4	Fanny Island	Fanny Island light.	A line running 045° - 225° (True) through 50°27'13"N, 125°59'30"W
33	4	Boat Bay	Boat Bay light.	A line running 000° - 180° (True) through 50°31'11"N, 126°34'37"W
34	4	Lizard Point	Lizard Point light.	A line running 045° - 225° (True) through 50°40'17".5N, 126°53'36"W
35	4	Lewis Point	Lewis Point light.	A line running 000° - 180° (True) through 50°33'07"N, 126°51'10"W
36	4	Pulteney Point	3 NM north of Pulteney Point light.	An arc centered on 50°37'51"N, 127°09'12"W, Radius 3 nautical miles.
37	4	Doyle Island	Doyle Island light.	A line running 045° - 225° (True) through 50°48'20"N, 127°27'32"W
38	4	Pine Island	Pine Island light.	A line running 045° - 225° (True) through 50°58'33"N 127°43'35"W

Number	Sector	Name	General Description & Conditions	Geographic Description
39	Change	Cape Caution Triangle Island	A line joining Cape Caution light with Triangle Island.	A line running from 51°09'50"N, 127°47'06"W, to 50°52'00"N 129°05'00"W
40	Change	Cape Scott	A line joining Cape Scott light with Triangle Island.	A line running from 50°46'57"N, 128°25'32"W, to 50°52'00"N, 129°05'00"W


VANCOUVER
VESSEL TRAFFIC SERVICES
Sectors 1 and 4
Sector Boundary
VANCOUVER ISLAND
QUEEN CHARLOTTE SOUND
Continuation to Queen Charlotte Sound on a smaller scale
See Continuation above
See Continuation below
See Larger Scale
Sector 4 VHF Ch 71
Sector 1 VHF Ch 11
Sector 3 VHF Ch12
Sector 2 VHF Ch 74
Cape Caution
Pine I.
Triangle Island
Cape Scott
Doyle Island
Lizard Pt.
Pulteney Pt.
Lewis Pt.
Broad Sd.
Fanny Island
Hanbury
Ripple Pt.
Cinque Islands
Separation Pd.
Sleep Island
Cape Mudge
Cape Lazo
Powell River
Malaspina Strait
Sabine Channel
Stevens Point
Stivers Island
Reception Pt.
Merry Island
Grace Island
Howe Sound
Mt. Atkinson
Gower Pt.
Cape Roger Curtis
Ballenas Island
Cottam Pt.
Entrance I.
Burrard Inlet
Burnaby Sh.
Vancouver Traffic
Second Narrows
VANCOUVER
Fraser R. N. Arm
Iona
Port Mann
Fraser River
Sand Heads
STRAIT OF GEORGIA
Porlier Pass
Tsawwassen
CANADA
USA
Active Pass
Pile Pt.
Portlock Pt.
East Pt.
Patos Island
Sucia Island
Skipjack Island
Turn Pt.
Victoria Traffic
S. Juan I.
Haro Strait
Cattle Pt.
Victoria
Hein Bank
JUAN DE FUCA STRAIT
Church Pt.
Race Rocks
Admiralty Inlet


VANCOUVER
VESSEL TRAFFIC SERVICES
Sectors 2 and 3
Sector Boundary
Howe Sound
Grace Island
Sector 3
VHF Ch 12
Gower Pt.
Cape Roger Curtis
Cowan Pt.
Pt. Atkinson
Dundarave
NORTH VANCOUVER
Burrard Inlet
Burrard Shoal
Vancouver Traffic
Second Narrows
VANCOUVER
Sector 3
VHF Ch 12
New Westminster
Fraser River North Arm
Queensborough
Marpole
Iona Lt.
Sector 1
VHF Ch 11
Lulu Island
La Farge
Fraser River
STRAIT OF GEORGIA
Sand Heads Lt.
Sector 2
VHF Ch 74
Woodward Islands
Deas Island
30′
20′
10′
123°
25′
49°
15′
05′

❖ *MACKENZIE RIVER MARINE SAFETY ADVISORY PROCEDURES*

For the purpose of enhancing navigation safety on the MacKenzie River danger areas have been designated and reporting procedures established for vessels in these areas.

The following *Marine Safety Advisory Procedures* on the MacKenzie River should be followed by all vessels on the river, and reported to MCTS Inuvik before entering, whilst proceeding through, and on leaving the danger zones (1-10) on the river listed below:

1 **Wrigley Harbour to Horn River**
- Downbound traffic reports in at Mile 0 and out at Mile 65.
- Upbound traffic reports in at Mile 65 and out at Mile 0.

2 **Head of the Line to Fort Simpson**
- Downbound traffic reports in at Mile 130, and again before leaving Mile 181 and reports out at Mile 205.
- Upbound traffic reports in at Mile 205 and out at Mile 130.

3 **Camsell Bend to Jones Landing**
- Downbound traffic reports in at Mile 282 and out at Mile 325.
- Upbound traffic reports in at Mile 325 and out at Mile 282.

4 **Blackwater River to Old Fort Point**
- Downbound traffic reports in at Mile 400 and out at Mile 480.
- Upbound traffic reports in at Mile 480 and out at Mile 400.

5 **Sans Sault Rapids**
- Downbound traffic reports in at Mile 620 and out at Mile 645.
- Upbound traffic reports in at Mile 645 and out at Mile 620.

6 **Ramparts Rapids**
- Downbound traffic reports in at Mile 667 and out at Mile 680.
- Upbound traffic reports in at Mile 680 and out at Mile 667.

7 **Oniak Channel**
- Traffic reports in when entering the Oniak Channel from the following channels: Middle Channel, Luker Channel and East Channel.
- Traffic reports out when leaving the Oniak Channel to the following channels: Middle Channel, Luker Channel and East Channel.

8 **East Channel - Inuvik to Tununuk**
- Downbound traffic reports when leaving Inuvik and out when either entering the Oniak Channel or at Mile 1040.
- Upbound traffic for Inuvik reports in at Mile 1040 or when entering from the Oniak Channel and reports arrival at Inuvik.

9 **East Channel - Kittigazuit**
- Downbound traffic reports in at Mile 1070 and out at the fairway buoy at Mile 1081.
- Upbound traffic reports in at the fairway buoy at Mile 1081 and out at Mile 1070.

10 **Vessels should also report to Inuvik MCTS before entering and upon leaving the following restricted channels in the Mackenzie Delta:**

- Aklavik Channel
- Arctic Red River
- Husky Channel
- Napoiak Channel
- Peel Channel
- Peel River
- Phillips Channel
- Schooner Channel
- Tiktalik Channel
- Tuktoyaktuk Entrance Channel

Mariners should also report in and out of any other restricted channels in the Delta at their own discretion.

All vessels should maintain a continuous radio watch on the Western Arctic Emergency and Calling Frequency, 5803 kHz (SSB), from the time that they reach the first reporting point previous to entering a danger area until the time that they report clear of the danger area.

If contact cannot be made with Inuvik MCTS on 5803 kHz, VHF channel 16 (156.8 MHz) may be used where available either directly or through another ship, for possible relay to Inuvik MCTS.

The Safety Advisory calls should consist of the following information:

(a) Name of towing vessel and number of barges in the tow and whether riding high or low
(b) Direction of voyage i.e. northbound, southbound, etc.
(c) Danger Zone
(d) Mileage
(e) Time
(f) Remarks

EXAMPLE:

Inuvik Coast Guard Radio this is Angus Sherwood, southbound with 6 barges riding high, entering Area 6 at Mile 680, 1030 Local estimating Mile 660 at 1530 Local, have you any traffic?

If contact cannot be made with Inuvik MCTS, either directly or through another ship, the vessel should transmit, her position blind on the chance that someone may hear it and relay it through. The MCTS officer, on receipt of a report of a vessel entering a danger area, will log the date, time of the report and the position of the vessel and will advise the vessel of any other known traffic in the area. At the same time the MCTS officer will advise all other traffic in the area of the first vessel's approach.

PART 4

GENERAL

MARINE TELEPHONE SERVICE

General

❖This service enables a person aboard ship to speak directly to any person ashore, or vice versa, as in ordinary long distance telephone calls. The service is an extension of the public telephone system to ships at sea through MCTS Centres. For procedures in establishing contact with MCTS Centres refer to "Radiotelephone Procedures". No distinction is made in regard to day, night or Sunday calls. Collect calls are admissible in either direction, ship to shore or shore to ship. This service applies only to Inuvik MCTS Centre as this service has been discontinued entirely at the Comox, Prince Rupert, Tofino, Vancouver and Victoria MCTS Centres.

Radiomedical Calls

Masters of ships may obtain medical advice by calling a MCTS Centre and request to be connected to a medical doctor. The Canadian Coast Guard will connect the vessel to the appropriate medical authority via the Marine Telephone System. The Canadian Coast Guard absorbs the cost of this service.

Placing a Marine Telephone Call

Ship to Shore

1. Listen to make sure that the MCTS Centre is not busy with another ship.

2. Call the MCTS Centre and when communication has been established give the following:

   (a) Name of the city being called.
   (b) Name and/or telephone number of the person being called, and if the call is to be made "collect".
   (c) Name of the caller or the number of the caller's telephone Co. credit calling card (if applicable).

3. When the call is completed, sign off, using the name and call sign of the ship.

4. When first placing the call, if a ship radio operator is unable to compute the charges which should be collected, request the MCTS Centre to "Report Charges". The MCTS Centre will then relay this information to the ship at the end of the call.

Shore to Ship

1. Dial "0 (zero)" and ask for the "Marine Operator".

2. Give the "Marine Operator" the following information:

   (a) Name of the person and ship being called and if the call is to be made "collect".
   (b) Name of the city and the telephone number from which the call is being made and number of the caller's telephone credit calling card (if applicable).

Receiving a Marine Telephone Call

1. When you hear your ship being called, reply, giving your ship's name and call sign.

2. At the end of the conversation, sign off by announcing the name and call sign of your vessel.

❖*CELLULAR TELEPHONE (*16) SERVICE - MARINE EMERGENCIES*

MCTS Centres in certain parts of Canada are connected to the cellular telephone network system where cellular telephone users can, **in an emergency situation, dial *16** on their telephone to access an MCTS Centre in order to obtain assistance.

Mariners are cautioned that **a cellular telephone is not a good substitute for a marine radio** because the maritime mobile radio safety system in the southern waters of Canada is based principally on VHF communications. VHF has the advantage that a call can be heard by the closest MCTS Centre(s) and by ships in the vicinity which could provide immediate assistance. On the other hand, the telephone cellular network is a party-to-party system and the benefit of the broadcast mode in an emergency situation cannot be obtained.

Mariners are reminded that the use of marine distress frequencies to obtain assistance in an emergency situation is the best option and that cellular telephone should be used only as an alternative should the VHF radiotelephone set not be available. Standard distress alerting equipment, such as marine radio and EPIRBS should never be replaced by cellular telephone alone.

Note: Details of this service may be obtained by contacting the local cellular telephone companies, however, mariners are cautioned that not all cellular telephone companies provide this service.

DIRECTION FINDING (DF) SERVICE

MCTS Centres in certain parts of Canada are provided with VHF/DF equipment, primarily to determine or confirm the bearing, from a DF facility, of a vessel requiring assistance in a distress or other emergency situation. In addition, an estimated line of position from a DF facility can be provided to vessels that are uncertain of their locations. Location of VHF/DF facilities will be found in the appropriate centre listings of this publication. The intent of this service is not to provide a navigation service. Positions must be regarded as estimates only. Mariners are cautioned that any information provided shall be used at their own discretion.

Direction Finding Bearings

Any MCTS Centre will, on request, transmit signals that will enable a ship to take a radio bearing with its own direction finder. It is pointed out to masters of ships fitted with direction finding equipment employing D.F. loops, that serious error may result in bearings taken if metallic material or equipment (poles, wires, winches etc.) are erected in proximity to the D.F. antenna equipment after calibration.

Masters of ships are urged to exercise caution in the use of commercial radio broadcasting stations as radio beacons. Bearings taken on such stations may be very inaccurate owing to errors caused by coastal refraction and the calibration of the Direction Finder employed may vary considerably due to the wide difference in frequencies used, (i.e. the standard broadcast band spreads over approximately 1060 kHz). In addition, it is advisable to make certain that the position of the broadcast transmitter (not the studio) is accurately known before using it as a navigation aid.

CANADIAN NAVTEX SERVICE

NAVTEX Service is available from the following transmitting sites:

Site	Position	Range (NM)	ID
Tofino	48 55 N 125 32W	300	H
Prince Rupert	54 17 N 130 25W	300	D

The service uses the frequency (518 kHz) on a time shared basis for the broadcast of the following subject-Indicator content:

(A) Navigational Warnings
(B) Meteorological Warnings
(C) Ice Reports
(D) Search and Rescue Reports
(E) Meteorological forecasts
(H) Loran-C messages
(K) DGPS NOTSHIPS

Broadcast time and content is shown in individual MCTS Centre listings.

PACIFIC REGION
300 NM NAVTEX COVERAGE
PRINCE RUPERT
TOFINO
BOTH
LAND
USA
CANADA
PRINCE RUPERT (D)
TOFINO (H)
USA

SAILPLAN AND ALERTING SERVICE

All small craft operators, including those making day trips, are encouraged to file a Sail Plan with a responsible person. This person should be instructed to call the Search and Rescue Centre if the vessel becomes overdue. (The telephone number can be found at the front of most telephone books, and should be included with the Sail Plan). In circumstances where it is not possible to file a Sail Plan with a responsible person, a Sail Plan may be filed with any Coast Guard Marine Communications and Traffic Services (MCTS) Centre. While at sea, masters/operators who have filed a sail plan with a MCTS Centre are encouraged to file a daily position report during long trips.

❖The information to be provided should be in accordance with the listing below.

- vessel identification;
- sail or power;
- vessel size and type;
- colour of hull, deck, and cabin;
- type of engines;
- other distinguishing features;
- radios and channels monitored;
- other communication equipment monitored, including contact references (telephone number, e-mail address, etc.);
- description of life rafts or small boats available;
- number and type of flares;
- number of lifejackets and/or survival suits;
- other safety equipment
- name, address, and telephone number of vessel owner;
- other information;
- date and time of departure;
- number of people on board;
- departure point;
- route and stop-over points;
- destination; (all destinations accepted)
- estimated time of arrival at destination;
- telephone number of an emergency contact person;
- alert time; and
- filing time.

TIMES

Times are expressed in four figures, the first two denoting the hour and the last two the minutes, the day starting at midnight with 0000 and ending at 2400.

Time Signals

Canada's official time is the responsibility of the National Research Council's Institute for National Measurement Standards, Ottawa, Ont. Its short wave radio station CHU, with transmitters located at 45 17 47N 75 45 22W is equipped with vertical antennas to give the best possible coverage to the maximum number of Canadian users. The signal is transmitted continuously on 3330kHz, 7335kHz and 14670kHz, upper sideband H3E (AM compatible). A cesium atomic clock generates the carrier frequencies (accurate to a part in 10^{11}) and the UTC seconds pulses (accurate to 50 microseconds). The start of each UTC second is marked by the start of 300 cycles of a 1000 Hz tone, with certain omissions and identifications. Every half-minute is marked by omitting the preceding tone (for second 29). In the 9 seconds preceding each minute, the second pulses are shortened to "ticks' to provide a window for the voice announcement, followed by a longer tone. The start of this tone marks the exact minute given by the announcement. This tone is one-half second long, except for the exact hour - when it is one full second long and in this case only is followed by 9 seconds of silence.

The bilingual voice announcement which is heard each minute takes the form:

"CHU Canada - Coordinated Universal Time – hours – minutes – heures -- minutes" for even minutes,

and

***"CHU Canada - Temps Universel Coordonné -- heures -- minutes** -- hours -- minutes" for odd minutes.*

A small number of the longer time announcements use the abbreviation "UTC" rather than the full form.

Following international practice, Canada's official time is based on Coordinated Universal Time (UTC) which is kept within one second of UT1, the time on the Greenwich meridian as used for celestial navigation. Users interested in the ultimate accuracy of celestial navigation can determine UT1 with an accuracy of 0.1 seconds by decoding the difference DUT1 = UT1 - UTC, as transmitted by CHU in the Internationally accepted code. The number of tenths of a second of DUT1 can be decoded by counting the number of emphasized second pulses that follow each minute. If the emphasized pulses occur for any of the seconds 1 to 8, DUT1 is positive; if the emphasized pulses occur for any of the seconds 9 to 16, DUT1 is negative. CHU emphasizes second pulses by splitting them (0.1 s of tone, 0.1 s of silence, 0.1 s of tone) so that a double tone is heard.

RADIOTELEPHONE PROCEDURES

General

In the interests of safe navigation, and especially during bad weather conditions, masters are asked to ensure that a conscientious continuous listening watch is maintained on 2182 kHz. Where practicable, and having due regard for Vessel Traffic Services and Seaway Control requirements, a conscientious listening watch should also be maintained on the VHF Ch16 (156.8 Mhz).

2182 kHz AND CH16 (156.8 MHz) MAY ONLY BE USED FOR DISTRESS AND URGENCY TRAFFIC, FOR SAFETY CALLS OR, WHEN OTHER MEANS OF ESTABLISHING CONTACT ARE UNAVAILABLE OR UNSUCCESSFUL, FOR CALLING PURPOSES. H3E (AM COMPATIBLE) IS THE ONLY SINGLE-SIDEBAND MODE OF EMISSION PERMITTED ON 2182 kHz.

MCTS Centres will continue to observe silence periods on the international distress carrier frequency 2182 kHz for three minutes twice each hour beginning on the hour and the half hour. This practice will continue until at least February 1, 2003.

Initial calls must be made directly on the safety and calling frequency 2182 kHz. This procedure is required because the Marine Communications and Traffic Services Centres do not normally monitor MF working frequencies.

Initial calls should be made directly on any of the VHF working frequencies shown in bold type, in the "Receiving column of the station listing, in which case the MCTS Centre will reply on the corresponding frequency shown in the "Transmitting" column. It is necessary on the initial call for the frequency or channel number (see listings) to be indicated. This procedure is required to provide MCTS officers, who guard a number of frequencies simultaneously, with a positive indication of the correct frequency to be selected for answering the call. Before making a call directly on a working frequency, care should be taken to listen for a period long enough to ensure that the channel is not in use.

Requests for radio checks shall be made to the MCTS Centre in the same manner outlined above for initial calls.

If difficulty is experienced in establishing contact with the MCTS Centre, or if contact is desired with another vessel, the initial call may be made on the calling frequency Ch16 (156.8 MHz) in which case the station called will reply on the same frequency. As soon as communication has been established a change must be made to an agreed working frequency and all further communications made on that frequency.

Masters of radiotelephone equipped ships are reminded that a log of all radio transmissions should be kept onboard their vessels.

The following examples will illustrate the procedure to be used.

Initial call, when a vessel is attempting to establish communication on a working frequency with a specific station:

Item	Spoken
Name of station called (not more than three times)	TOFINO COAST GUARD RADIO
The words THIS IS	THIS IS
Type, name, radio call sign of vessel calling (not more than three times), and channel	STEAMER FAIRMOUNT CYLD CHANNEL 26
Invitation to reply?	OVER

Call, when a vessel wishes to establish communications with any station within range (or within a certain area).

Item	Spoken
General call (not more than three times)	ALL STATIONS (or ALL SHIPS IN JOHNSTONE STRAITS)
The words THIS IS	THIS IS
Type, name and radio call sign of vessel calling (not more than three times)	TANKER IMPERIAL CORNWALL/VCVC
Invitation to reply.	OVER

When a station wishes to broadcast information rather than to establish communication, it proceeds with the message instead of giving the invitation to reply.

A radio message from a ship consists of several parts, which shall be transmitted in the following order:

(a) Type, name and radio call sign of the originating ship.
(b) The number of the message. (Number 1 shall be given to the first radiotelegram sent each day to each separate station).
(c) The number of words.
(d) The date and time the message originated.* (Preferably in UTC. Daylight Saving Time shall not be used).
(e) The address.
(f) The text, or body of the message.
(g) The signature.

Note: Items (a), (b), (c) and (d) taken together, are known as the "preamble".

* Date and time may be sent as one group, the first two figures indicate the date, the last four the time.

Example of a ship to shore radio message -

MESSAGE, FROM STEAMER WEST WIND, CALL SIGN VC2222, NUMBER ONE, NUMBER OF WORDS ONE TWO, FILED ZERO SEVEN ONE TWO TWO FIVE GREENWICH, BREAK, ADDRESS OCTERM MONTREAL, BREAK, TEXT, ARRIVING LOADING PIER 1200 LOCAL TOMORROW PLEASE ARRANGE BUNKERING, BREAK, SIGNATURE MASTER, OVER.

An acknowledgment of receipt of a message shall not be given until the receiving operator is certain that the transmitted information has been received correctly.

While it is not practical to lay down precise words and phrases for all radiotelephone procedures, the following should be used where applicable.

Word or phrase	Meaning
ACKNOWLEDGE	Let me know that you have received and understood this message.
CORRECTION	An error has been made in this transmission. The correct version is .....
GO AHEAD	Proceed with your message.
OVER	My transmission is ended and I expect a response from you.
OUT	This conversation is ended and no response is expected.
READ BACK	After I have given OVER, repeat all this message back to me exactly as received.
ROGER	I have received all of your last transmission.
RECEIVED NUMBER	Receipt of your message number..... is acknowledged.
STAND BY	Wait until you hear further from me.
VERIFY	Check with the originator and send the correct version.
WORDS TWICE	As a request - Please send each word twice. As information - I will send each word twice.

How Are You Using Your Marine Radio?

There are over 150 thousand licensed radio stations in British Columbia. Each of these stations are assigned specific frequencies to suit their unique requirements. For the most part, clear and unobstructed communications on the airwaves is possible because most observe the rules that govern radio operation.

But a serious problem has developed in the use of synthesized two-way radio on board vessels on the West Coast. Certain vessel operators are selecting unauthorized channels on synthesized radios. This is causing severe interference to land-based municiple services. In such cases, Industry Canada intends to lay charges under the Radio Act and the Radio Regulations.

Your cooperation in using only assigned marine channels is very important. Your safety and the safety of others depends on it.

Phonetic Alphabet

When it is necessary to spell out call signs, service abbreviations and words whose spelling might be misinterpreted, the following letter spelling table shall be used:

A - ALFA	G - GOLF	M - MIKE	S - SIERRA	Y - YANKEE
B - BRAVO	H - HOTEL	N - NOVEMBER	T - TANGO	Z - ZULU
C - CHARLIE	I - INDIA	O - OSCAR	U - UNIFORM	
D - DELTA	J - JULIETT	P - PAPA	V - VICTOR	
E - ECHO	K - KILO	Q- QUEBEC	W - WHISKEY	
F - FOXTROT	L - LIMA	R- ROMEO	X - X-RAY	

❖*DISTRESS COMMUNICATIONS*

Canadian MCTS Centres provide coverage of all marine distress frequencies, however, each centre does not necessarily guard each frequency (refer to Centre listings Part 2). MCTS provides co-ordination between the RCC/MRSC and the vessel or vessels concerned with the distress.

The radiotelephone distress frequencies are:

i) 2182 kHz on medium frequency band; and
ii) 156.8 MHz (channel 16) on very high frequency band (VHF); and
iii) any other available frequency on which attention might be attracted if transmissions on 2182 kHz and 156.8 MHz are not possible or successful.

In order to increase the safety of life at and over the sea, all ships should during the hours that they keep a listening watch on the distress frequency (2182), take steps to ensure that they, as far as possible:

i) pay particular attention to keeping a careful aural watch on this frequency during the silence periods for three minutes twice each hour starting at the even hour (xh00m) and at the half hour (xh30m) UTC; and
ii) do not transmit during these silence periods.

When another craft is in distress:

i) all transmissions capable of interfering with the distress traffic must be stopped;
ii) attention must be concentrated on the distress communications and all information possible intercepted; and
iii) a station in the vicinity of the distressed craft must acknowledge receipt of the distress message if received, giving its own position in relation to that of the craft in distress and stating the action being taken.

Distress communications consist of the:

- **Alarm Signal;**
- **Distress Signal;**
- **Distress Call;**
- **Distress Message; and**
- **Distress Traffic.**

An Alarm Signal followed by the Distress Signal and/or a Distress Call announces that the ship, aircraft or other vehicle that is making the transmission is:

i) threatened by serious and imminent danger and requires immediate assistance; or
ii) aware of another ship, aircraft or other vehicle threatened by serious and imminent danger and requires immediate assistance; and
iii) **distress communications** should be repeated by the craft in distress until an answer is heard.

The Alarm Signal

The radiotelephone Alarm Signal consists of the continuous alternate transmission of two audio tones of different pitch for a period of at least thirty seconds but not to exceed one minute. The sound of this tone is similar to that used by some ambulances.

The Alarm Signal is used to alert coast radio stations and other ships:

i) that a Distress Call or Distress Message may or is about to follow; or
ii) that the transmission of an urgent cyclone warning, which should be preceded by the Safety Signal (SÉCURITÉ), will be sent by a coast radio station; or
iii) that a person has been lost overboard and the assistance of another ship is required and such other ship cannot be contacted by using the Urgency Signal (PAN PAN) alone.

The Alarm Signal:

i) must never be used for any other reason than that which is described above; and
ii) should first be sent on the distress frequencies of 2182 kHz and/or Ch16 (156.8 MHz);
iii) may also be sent on any other frequency if the call is not successful on the distress frequencies; and
iv) may activate a monitoring device called a distress frequency watch receiver which guards 2182 kHz.

The **Distress Signal** consists of the word "MAYDAY".

The **Distress Call** consists of:

i) the word "MAYDAY"; (spoken three times)
ii) the words "This is"; followed by:
iii) the name of the ship in distress. (spoken three times)

The Distress Call:

i) should not be addressed to a particular coast radio station or ship; and
ii) has absolute priority over all other transmissions and all coast radio stations and ships that hear this call must cease any transmissions that will interfere with it and must listen on the frequency used for this call.

The **Distress Message** consists of:

i) the word "MAYDAY";
ii) the name of the ship in distress;
iii) the position of the ship in distress;
iv) the nature of the distress;
v) the kind of assistance needed;

vi) any other useful information which might assist the rescue;
vii) the word "Over" which is an invitation to acknowledge and reply.

Distress Traffic consists of all messages about the immediate assistance required by the ship in distress.

Prior to the transmission of any Distress Traffic, the Distress Signal "MAYDAY" must be sent once before the call.

The control of Distress Traffic is the responsibility of the ship in distress or of the ship or coast radio station sending a Distress Message.

A mobile station that learns that another mobile station is in distress may transmit the distress message if:
i) the station in distress cannot transmit it;
ii) the master or person responsible for the craft carrying the station which intervenes believes that further help is necessary;
iii) although not in a position to render assistance, it has heard a distress message which has not been acknowledged.

In the above situation the distress message takes the following form:
i) the radiotelephone Alarm Signal if possible;
ii) the words "MAYDAY RELAY"; (spoken three times)
iii) the words "This is";
iv) the identification of the mobile station repeating the message. (spoken three times)

When Distress Traffic has ceased or when silence is no longer necessary the station that has controlled the Distress Traffic must transmit a message on the distress frequency advising that the distress traffic has ceased.
i) the word "MAYDAY";
ii) the words "All Stations"; (spoken three times)
iii) the words "This is";
iv) the name of the station which has controlled the distress traffic;
v) the current Universal Time Co-ordinated (UTC);
vi) The name of the ship in that was in distress the words "SEELONCE FEENEE";
vii) a brief description of the resolution of the distress;
viii) the word "Out".

Distress Procedure Example

Transmission of the Alarm Signal for between 30 seconds and one minute, if possible, then the following spoken slowly and distinctly.

Distress Signal	"MAYDAY" (three times)
the words	"This is"
name of ship	"Nonsuch" (three times)
Distress Signal	"MAYDAY"
name of ship	"Nonsuch"
position	"Off Iles-St-Marie"
nature of distress	"Struck rock and taking on water"
assistance needed	"Require help to abandon ship"
other useful information	"Will fire rockets"
invitation to acknowledge and reply...	"Over"

❖*URGENCY COMMUNICATIONS*

The **Urgency Signal** consists of the words "PAN PAN".

The **Urgency Call** consists of:
i) the words "PAN PAN"; (spoken three times)
ii) the words "All Stations" or station specific call; (spoken three times)
iii) the words "This is" followed by;
iv) the name of the station making the call. (spoken three times)

The urgency signal/call may be transmitted only on the authority of the master or the person responsible for the ship, aircraft or other vehicle carrying the mobile station.

Use of this signal/call indicates that the station calling has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle or of some person on board or within sight.

The urgency signal, the urgency call, and the urgency message shall be sent on the distress frequencies 2182 kHz and Ch16 (156.8 MHz). If transmission on these frequencies is impossible, any other available frequency on which attention might be attracted should be used.

The urgency signal has priority over all other communications, except distress, and all stations which hear it must take care not to interfere with the transmission of the message which follows the urgency signal.

Stations which hear the urgency signal must continue to listen for at least three minutes. At the end of this period, if no urgency message has been heard, normal service may be resumed. However, stations which are in communication on frequencies other than those used for transmission of the urgency signal may continue their normal work without interruption provided the urgency message is not addressed "to all stations".

In the sole case of loss of persons overboard where assistance of other ships is required and cannot successfully be obtained by the use of the urgency signal alone, the radiotelephone alarm signal may be transmitted before the urgency call by the ship involved. This signal shall not be repeated by other stations.

❖*SAFETY COMMUNICATIONS*

The **Safety Signal** consists of the word "SÉCURITÉ".

The **Safety Call** consists of:
i) the word "SÉCURITÉ"; (spoken three times)
ii) the words "All Stations"; (spoken three times)
iii) the words "THIS IS" followed by:
iv) the name of the station making the call; (spoken three times)
v) "Safety Message"
vi) "Listen 2638 kHz."

The safety call is transmitted on the distress frequencies 2182 kHz and Ch16 (156.8 MHz). If transmission on these frequencies is impossible, any other available frequency on which attention might be attracted shall be used.

The safety signal/call indicates that the station is about to transmit a message concerning the safety of navigation or an important meteorological warning. The safety message should be sent on a working frequency, which is announced at the end of the call.

All stations hearing the safety signal shall shift to the working frequency indicated in the call and listen to the safety message until satisfied it does not concern them.

The **Safety Message** format consists of:

i) the word "SÉCURITÉ";
ii) the words "All Stations"; (spoken three times)
iii) the words "This is" followed by:
iv) the name of the station making the call; (spoken three times)
v) the details of the safety message;
vi) the word "Out".

❖ *ATHABASCA - MACKENZIE WATERSHED AREA: DISTRESS, URGENCY, SAFETY COMMUNICATIONS - USE OF 5803 KHZ*

The frequency of 5803 kHz is the area distress and calling frequency for the Athabasca - Mackenzie inland waterways. This frequency should be carried on all commercial vessels and will be monitored at all times when the vessel is in active operation on the waterways.

This frequency will not be used for any type of communication other than distress, urgency and safety communications and for the purpose of establishing initial radio contact with another vessel or shore station. After initial contact is made, for other than distress or emergency communication, the vessel and/or shore station involved will immediately transfer to an established working frequency.

For the provision of relay or assistance in communication to a land station or other vessel, the Canadian Coast Guard will provide, during the shipping season, 24 hour receive and transmit facilities on 5803 kHz from MCTS Inuvik/VFA.

GMDSS - GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM IN CANADA

What is GMDSS?

The Global Maritime Distress and Safety System (GMDSS) is an international system using improved terrestrial and satellite technology and ship-board radio systems. It ensures rapid alerting of shore-based rescue and communications authorities in the event of an emergency. In addition, the system alerts vessels in the immediate vicinity and provides improved means of locating survivors.

GMDSS was developed through the International Maritime Organization (IMO) and represents a significant change in the way maritime safety communications are conducted. While it is mandatory for all ships subject to the International Convention for the Safety Of Life At Sea (SOLAS) (cargo ships 300 gross tons or greater and all passenger vessels, on international voyages), GMDSS will impact on all radio-equipped vessels, regardless of size. All SOLAS ships are required to fully comply with GMDSS.

Why GMDSS?

GMDSS was developed to **SAVE LIVES** by modernizing and enhancing the current radiocommunications system. By utilizing satellite and digital selective calling technology, GMDSS provides a more effective distress alerting system. It improves the current system by:

- increasing the probability that an alert will be sent when a vessel is in distress;
- increasing the likelihood that the alert will be received;
- increasing the ability to locate survivors;
- improving rescue communications and coordination; and
- providing mariners with vital maritime safety information.

Maritime Safety Information (MSI)

Maritime Safety Information broadcasts, which comprise distress alerts, SAR information, navigational and weather warnings, as well as forecasts, can be received in three different ways in GMDSS:

1. NAVTEX receivers are fully automatic and receive broadcasts in coastal regions up to 300 nautical miles offshore.
2. Inmarsat-C terminals receive Enhanced Group Call - SafetyNET (EGC) broadcasts for areas outside NAVTEX coverage.

3. HF Narrow Band Direct Printing (NBDP) receivers can be used where service is available as an alternate to EGC.

GMDSS Sea Areas - International

Although ship-to-ship alerting is still an important function in GMDSS, the emphasis is on two way communications between ships and shore facilities. All GMDSS ships must be capable of communicating with the shore and transmitting a distress alert by two different means. The equipment carried by a GMDSS ship is therefore determined by its area of operation and the availability of shore-based communications services.

There are four "Sea Areas" defined in the GMDSS:

Sea Area A1	Within range of shore-based VHF DSC coast station (40 nautical miles)
Sea Area A2	Within range of shore-based MF DSC coast station (excluding sea areas A1)(150 nautical miles)
Sea Area A3	Within the coverage of an Inmarsat geostationary satellite (approximately 70°N to 70°S) (excluding sea areas A1 & A2)
Sea Area A4	The remaining areas outside sea areas A1, A2 & A3 (polar regions)

GMDSS Sea Areas - Canada

In Canada, as a result of consultations with the Canadian marine industry, it has been decided to implement sea areas A1 on the east and west coasts. Outside of A1 will be an A3 sea area with an A4 sea area in the Arctic.

Consideration was given to the implementation of an A2 sea area, but due to budgetary constraints and the marine industry's preference for sea areas A1 and A3, sea area A2 is not being planned at this time nor are sea areas for the Great Lakes and St Lawrence River.

❖On Canada's east and west coasts, VHF DSC implementation is scheduled to begin in 2001 to cover the busiest areas. Full implementation, similar to today's VHF coverage, is planned to be completed in 2002/03. A1 sea areas will be declared as shore facilities are provided. In the Canadian Arctic, communications will be augmented by providing HF DSC and NBDP services planned for July 1, 2001, at which time, sea area A4 will be declared.

Communications Between GMDSS Vessels & Non-GMDSS Vessels

After February 1,1999, GMDSS ships will be maintaining an automated listening watch on VHF DSC ch 70 and MF DSC 2187.5 kHz. This will create the situation, during the transition to GMDSS, where vessels fitted with traditional, non-GMDSS radio equipment, may have difficulties alerting or contacting a GMDSS ship. The Coast Guard is addressing this by monitoring both GMDSS and traditional distress frequencies during the transition where the necessary equipment has been installed. Although the final date for the cessation of mandatory watchkeeping on VHF Ch16 by SOLAS ships has been changed to February 1, 2005 by the IMO, all vessels should fit VHF/DSC as soon as practicable to keep the transition period short.

Canadian Coast Guard Marine Communications and Traffic Services (MCTS) Centres

To help ease the transition to GMDSS and bridge the communication gap between the two systems, Canadian Coast Guard MCTS Centres will continue to monitor VHF Ch16 for the foreseeable future and MF 2182 kHz until at least 2003 the current distress and safety channels. Once Canada's sea areas have all been implemented, lower cost DSC equipment is available, and it is determined that these services are no longer required, these listening watches may be discontinued.

To supplement the broadcasting of Maritime Safety Information (MSI) on NAVTEX and INMARSAT EGC, MCTS Centres will continue safety broadcasts using the existing VHF continuous marine broadcast system.

CANADIAN A3/A4 GMDSS SEA AREAS
THEORETICAL COVERAGE
A4
A3
A3

Map 6

SEARCH AND RESCUE IN CANADIAN AREAS OF RESPONSIBILITY

The Canadian Forces (CF) have overall responsibility for coordination of Search and Rescue (SAR) activities in Canada, including Canadian waters and the high seas off the coasts of Canada, and for the provision of dedicated SAR aircraft in support of maritime SAR incidents. The Canadian Coast Guard (CCG) coordinates maritime SAR activities within this SAR zone, in cooperation with CF, and provides dedicated maritime SAR vessels in strategic locations. Rescue Coordination Centres (RCC) are maintained at Victoria, B.C., Trenton, Ont., and Halifax, N.S. These centres are staffed 24 hours a day by Canadian Forces and Canadian Coast Guard personnel. In addition, Maritime Rescue Sub-Centres (MRSC), staffed by Coast Guard officers, are located at St. John's, Nfld. and Quebec City, Québec to coordinate local maritime SAR operations.

RCC Victoria

Emergency telephone number	800-567-5111 (250) 363-2333
Telex number	043-52586

RCC Trenton

Emergency telephone number	800-267-7270 (613) 965-3870
Telex number	066-2282

❖RCC Halifax

Emergency number	800-565-1582 (902) 427-8200
Telex number	584331699943, Inmarsat B on Atlantic Ocean Region West

MRSC Québec

Emergency telephone number	800-463-4393 (418)648-3599

MRSC St. John's

Emergency telephone number	800-563-2444 (709)772-5151
Telex number	016-4044

Canadian Coast Guard Auxiliary

The Canadian Coast Guard Auxiliary (CCGA) is an Association of approximately 2,500 dedicated volunteers operating more than 1200 vessels to support the Canadian Coast Guard in Marine Search and Rescue.

For more information on maritime SAR services in Canada, refer to Section 28 of the Annual Edition of Notices to Mariners, published by the Canadian Coast Guard, Marine Navigation Services.

MARINE COMMUNICATIONS AND TRAFFIC SERVICES MESSAGE SERVICE

Message Charges

Messages subject to full international charges:

(a) Quarantine messages addressed to "Quarantine"
(b) Messages requesting a doctor to meet a ship on arrival
(c) Ships' business messages
(d) Private messages.

Applicable charges are available on request from MCTS Centres

Messages handled without charge by MCTS Centres:

(a) Messages pertaining to weather or ice information and ice routing.
(b) Messages concerning aids to navigation.
(c) AMVER Messages, addressed AMVER HALIFAX
(d) Radiomedical messages.
(e) Messages reporting pollution.

(f) Messages addressed to a port or a member of the Canadian Coast Guard that involves a report of a ship movement, position or condition.
(g) Messages addressed to a Rescue Co-ordination Centre (RCC) and Marine Rescue Sub-Centres (MRSC)
(h) Canadian Pilotage messages
(i) Official Naval messages

Weather Messages

Weather reports in the international meteorological code, made at the standard synoptic hours of 0000, 0600, 1200 and 1800 UTC, are solicited from ships of all nationalities which have been recruited by their own national weather service, or other weather services, to make weather reports on a regular basis. These reports should be made and transmitted to the nearest MCTS Centre, irrespective of the ship's position. In fact, reports made close to, or even within sight of land, are equally important to reports made offshore, due to the greater variability of weather conditions in proximity to a coastline.

Pollution Messages

All vessels plying Canadian and adjacent waters are requested to report oil slicks or pollution of any type to the nearest MCTS Centre.

Medical Advice Messages

Masters of ships may obtain medical advice by addressing a radiotelegram to "Radiomedical" and routing it via the nearest MCTS Centre which will refer the message to the nearest medical authority and transmit the reply to the ship.

Quarantine Messages

1. In the following circumstances only, the person in charge of a vessel shall, by radio, at least 24 hours prior to the vessel's estimated time of arrival at its port of destination and between the hours of 9:00 o'clock in the forenoon and 5:00 o'clock in the afternoon local time, notify the quarantine officer at the quarantine station designated in paragraph 3 for that port of the occurrence:

   Where, in the course of a voyage of a vessel,

   (a) a member of the crew or a passenger on board the vessel has

      i. died,
      ii. had a temperature of 38° C (100°F) or greater that persisted for two days or more or was accompanied or followed by a rash, jaundice or glandular swelling, or
      iii. suffered from diarrhea severe enough to interfere with that person's work or normal activity,

   (b) the person in charge of the vessel is, during the period

      i. of four weeks preceding the estimated time of arrival of the vessel, or
      ii. since he last submitted a declaration of health as required by section 16, whichever is the lesser, aware of any instance of illness among the crew or passengers that he suspects is of an infectious nature and may lead to the spread of disease,

   (c) the vessel has, within sixty days of its estimated time of arrival in Canada, been in a country that, in the opinion of a quarantine officer, is infected or suspected of being infected with the plague, or

   (d) a certificate establishing that the vessel has been de-ratted or exempted from de-ratting procedures has expired or is about to expire.

2. At the same time, the person in charge of a vessel shall, by radio, provide the quarantine officer with the following information:
   (a) the name and nationality of the vessel;
   (b) the ports called at during the voyage of the vessel;
   (c) the nature of the cargo on board the vessel;

(d) the number of persons comprising the crew of the vessel;
(e) the number of passengers on board the vessel;
(f) the port of destination of the vessel and the name of the vessel's owner or, if the owner is not in Canada, the

(g) the condition of all persons on board the vessel and details of any death or illness occurring during the voyage;
(h) whether the body of any person is being carried on the vessel;
(i) the estimated time of arrival of the vessel at the port of destination; and
(j) the date and place of issuance of any de-ratting certificate or de-ratting exemption certificate applicable to the vessel.

3. For the purposes of paragraph 1, the quarantine station for vessels bound for

(a) quarantine stations in the province of British Columbia include: Vancouver and Victoria.

4. The person in charge of a vessel who wishes to change his port of destination after receiving instructions from the quarantine officer, shall notify him of such change and request new instructions.

Pilotage Messages

For detailed information on Notices to Obtain Pilot, further details on Notices of Departure, Notices of Movage, Optional Notices and Required Information, please refer to Section 23 of the latest Annual Edition of Notices to Mariners, published by the Canadian Coast Guard, Marine Navigation Services.

Official Naval Messages

For detailed information on Naval Messages to Canadian and Commonwealth ships in Canadian areas, please refer to Section 39 of the latest Annual Edition of Notices to Mariners, published by the Canadian Coast Guard, Marine Navigation Services.

AUTOMATED MUTUAL-ASSISTANCE VESSEL RESCUE SYSTEM (AMVER)

The AMVER System, operated by the United States Coast Guard, is a maritime mutual assistance program that provides important aid to the development and coordination of search and rescue (SAR) efforts in the oceans of the world. Merchant vessels of all nations making offshore passages of more than 24 hours are encouraged to send sail plans and periodic position reports to the AMVER centre in Martinsburg, W.V. There is no charge for these radio messages when they are sent through MCTS Centres. Information from these messages is entered into an electronic computer that generates and maintains dead reckoning positions for participating vessels throughout their voyages. The predicted locations and SAR characteristics of all vessels known to be within a given area are furnished upon request to recognized SAR agencies of any nation for use during an emergency. Predicted vessels' locations are disclosed only for reasons related to maritime safety.

AMVER is a free and voluntary program. Benefits to shipping include:

- improved likelihood of rapid aid in emergencies;
- reduced number of calls for assistance to vessels not favorably located;
- reduced time lost for vessels responding to calls for assistance. An AMVER participant is under no greater obligation to render assistance during an emergency than a vessel that is not participating.

Details of AMVER System operations may be obtained from AMVER Maritime Relation Office, U.S Coast Guard, Battery Park Building, New York, N.Y. 10004 (1-212-668-7762). AMVER instructions are also available at Coast Guard Captain of the Port and Marine Inspection Offices in major United States coastal ports. The instructions are published in the following languages: Chinese, Danish, Dutch, English, French, German, Greek, Italian, Japanese, Norwegian, Polish, Portuguese, Spanish, Swedish and Korean. Requests for instructions should state the language desired if other than English.

Ship Station Technical Regulations now specify compulsory participation in the Automated Mutual-Assistance Vessel Rescue System (AMVER) for certain ships when departing on an offshore voyage of more than 24 hours duration.

The provisions apply to all Canadian ships and to all non-Canadian ships engaged in the coasting trade of Canada. Of this group, the following are exempted:

- fishing vessels engaged in fishing;
- ships operated by the Canadian government on law enforcement duties;
- vessels whose voyages will be within the waters of an Arctic Shipping Safety Control Zone, Hudson Bay, James Bay or Ungava Bay; and
- vessels in other waters provided their voyages are within VHF or MF coverage areas.

It should be noted that the above exemptions do not amount to a prohibition; and that all other ships proceeding on an offshore voyage of more than 24 hours duration are encouraged to participate in AMVER.

I. To Participate

Any merchant vessel of one thousand gross tons or more on a voyage of greater than twenty-four hours to anywhere on the globe is welcome in the AMVER System and family. International participation is voluntary regardless of vessel's or company's flag, country of origin, or destination.

II. The Information Reported

Information voluntarily provided by vessels to AMVER is kept strictly confidential, and is protected by the Coast Guard. It will be released only for safety purposes, and as a free service to our participants to satisfy certain advance notification requirements of Title 33, U.S. Code of Federal Regulations.

III. What and When You Report

A. Sailing plan and departure message should be sent on departure.
B. Position Reports should be sent within twenty-four hours of departure and subsequently no less frequently than every forty-eight hours until arrival.
C. Arrival Reports should be sent immediately prior to or upon arrival at the Port of Destination.
D. Reports are to be sent during the Radio Officer's normal duty hours.
E. At the discretion of the vessel, reports may be sent more frequently than the above schedule, as, for example, in heavy weather or under other adverse conditions.

IV. Report Format

As previous AMVER participants will note, the format described below represents a change. The change serves two purposes: First, the new format is considerably more powerful and flexible. Following the new format will permit the automatic data processing system to enter your information into AMVER more accurately and efficiently. Second, the new format conforms with the International Maritime Organization (IMO) proposed standard. Third, it reduces the number of different formats in use. As other systems also adopt the IMO format, we will have moved closer to a single format worldwide.

V. AMVER System Communications Network

A worldwide radio station communications network of coastal and Ocean Station Vessel facilities support the AMVER System. Propagation conditions, location of vessel, and traffic density will normally determine which station may best be contacted to establish communications. To ensure that no charge is applied, all AMVER reports should be passed through specified radio stations. Those which currently accept AMVER reports and apply no coastal station, ship station, or landline charge are listed in each issue of the "AMVER Bulletin" publication. Also listed are the respective International Radio Call Signs, locations, frequency bands, and hours of operation.

The "AMVER Bulletin" is available from:
AMVER Maritime Relation Office
U.S. Coast Guard
Battery Park Building
New York, N.Y. 10004
Telephone: (212) 668-7762

Although AMVER reports may be sent through non-participating stations, the Coast Guard cannot reimburse the sender for any charges applied.

VI. AMVER Voyage Report Types

There are four types of AMVER Reports - Sailing Plan & Departure, Arrival, Position, and Deviation Reports.

A. Reporting format. Each line of AMVER Report text starts with a line identifier. Line identifiers are "AMVER" or a single letter. The line identifier and the data items on the line are each separated from each other by a single slash ("/"). Lines are terminated by two slashes ("//").

B. Reporting data. AMVER participants need to be familiar with four types of reports - Sailing Plan & Departure, Arrival, Position, and Deviation Reports. Note that AMVER permits sailing plan and departure to be combined into a single report. AMVER accepts sailing plan information separately - for example, several days prior to departure. Report identifiers are as follow:

AMVER/SP//	Sailing Plan & Departure
AMVER/PR//	Position Report
AMVER/FR//	Arrival Report.
AMVER/DR//	Deviation Report.

C. Details. Paragraph IX includes a discussion of each report type. Each example is followed by an explanation. Note that not all the lines in the example are necessary for each type of report. The required and optional lines are discussed in each section.

VII. Other Required Information

AMVER also needs other information which might be useful in an emergency. This includes data such as the ship length, communications equipment, radio watch schedule, speed, rig, and so forth. This information is collected separately once, and retained in the automatic data processing system, periodically validated, and used only for search-and-rescue purposes.

VIII. Release of Information

All voluntary information collected under these instructions will be only released to recognized search-and-rescue authorities or to make advance notice to the U.S. Coast Guard of arrival in U.S. ports as required by certain sections of Title 33, Code of Federal Regulations. Information regarding vessels required to participate in AMVER will be forwarded to the U.S. Maritime Administration.

IX. Description of Voyage Reports

An example and explanation of each of the four types of AMVER reports follows. Numbers in parentheses refer to footnotes at the end of the section.

A. Sailing Plan & Departure Report. The "L" lines contain routing and "turnpoint" information needed by AMVER. AMVER needs data about every intended turnpoint, but also accepts information about any points along the intended track, even though they might not be turnpoints. Turnpoint information in needed by AMVER to maintain plot accuracy.

EXAMPLE:

AMVER/SP//
A/SANDY JOAN//ABCD//
B/110935Z//
E/145//
F/126//
G/NORVOROSK/4510N/03820E//
I/GIBRALTERGI/3600N/00600W/140730Z//
L/RL/140/4130N/02910E/112000Z//

L/RL/140/4010N/02620E/112300Z//
L/RL/140/3630N/02330E/120330Z//
L/RL/140/3650N/01520E/121500Z//
L/RL/140/3800N/01000E/130100Z//
L/LR/060//
M/GKA/GKM//
V/MD/NURSE//
X/NEXT/REPORT/120900Z//
Z/SITOR/INSTALLED/SELCALL/NUMBER/IS/99999//
Z//EOR

EXPLANATION:
Required -

AMVER/SP//

A /vessel/name/International Radio/Call Sign//
B /intended time of departure or departure time // (1)
G /port of departure/latitude//longitude// (2)
I /port of destination/latitude//longitude/estimated time of arrival//(1) (2) (3)
L / ..... route information ...// (1) (3) (4)
Z // end of report

Optional -

E /current course// (5)
F /estimated average speed// (6)
M /current coastal radio station//next coastal radio station, if any//
V /onboard medical resources// (7)
X /up to 65 characters of amplifying comments// (8) (9)

B. Arrival Report.

EXAMPLE:
AMVER FR//
A/SANDY/JOAN/ABCD
K/NEW YORK/US/4040N/07420W/180600Z//
X/PROBLEMS WITH MF XMTR AGENT/ADVISED//
Z//EOR

EXPLANATION:
Required -

AMVER/FR//

A /vessel name International Radio Call Sign//
K /port name latitude longitude time of arrival// (1) (3)
Z // end of report

Optional -

X /up to 65 characters of amplifying comments// (8) (9)

C. **Position Report.**

EXAMPLE:
AMVER/PR//
A/SANDY/JOAN/ABCD//
B/120300Z//
C/3630N/02330E//
E/145//
F/126//
M/GKM//
X/NEXT REPORT/131800Z//
Z//EOR

EXPLANATION:
Required -
AMVER/PR//
A /vessel name International Radio Call Sign//
B /time at position// (1)
C /latitude longitude// (3)
Z //end of report

Optional -
E /current course (5)//
F /average speed (6)//
M /current coastal radio station next coastal radio station, if any//
X /up to 65 characters of amplifying comments (8) (9)//

D. **Deviation Report.** Used to report sailing plan and other changes.

EXAMPLE:
AMVER/DR//
A/SANDY/JOAN/ABCD//
B/120300Z//
E/095//
F/220//
G/NORVOROSK/4470N/03780E//
I/NEW YORK US/4040N/07420W/180800Z//
L/GC/220//
M/GKA/WSL/NMN//
V/MD/NURSE//
X/DIVERTING BEST SPEED TO NEW YORK US//
Z//EOR

EXPLANATION:
Required: AMVER/DR//
A /vessel name International Radio Call Sign//
Z //end of report

One or more of the following optional items -
B /intended time of departure// (1)
E /intended course// (5)
F /intended average speed// (6)
G /port of departure latitude longitude// (2)
I /port of destination latitude longitude estimated time of arrival//(1) (2) (3)
L / ..... route information ....// (1) (3) (4)
M /current coastal radio station next coastal radio station, if any
V /onboard medical resources// (7)
X /up to 65 characters of amplifying comments// (8) (9)

Footnotes:

(1) All times must be expressed as a six-digit group giving date of month (first two digits), hours and minutes (last four digits). Only Universal Coordinated Time (i.e. Greenwich Mean Time) is to be used. The six-digit date-time-group is to be followed by either Z or GMT. The month is optional, and may be added, if appropriate. The first three digits of the English-language month is used. The following examples are acceptable:
290900Z
290900 Z
290900Z DEC

(2) Port latitude longitude refers to the geographic position of the pilot station. Both port name and geographic position are required from U.S. flag vessels.

(3) Latitude is a four-digit group expressed in degrees and minutes, and suffixed with "N" for north or "S" for south. Longitude is a five-digit group expressed in degrees and minutes, and suffixed with "E" for east or "W" for west.
For example: C/4000N/03500W//

(4) The "L" lines contain most of the sailing plan information. As many "L" lines as needed may be used. T lines contain routing data to each of the intermediate points, and to the destination. Data about all turnpoints are required, unless the voyage will follow a great circle with no delays at intermediate points. In addition to turnpoint information, data about other points along each leg are useful. Following, is the information desired for each intermediate point: navigation method leg speed latitude longitude port or landmark name ETA estimated time of departure.
For example:
L/RL/125/0258N/07710W/ABACO/111200Z//
L/RL/125/0251N/07910W/NWPROVCHAN/112145Z//
L/RL/125/0248N/08020W/120255Z//
L/RL/125//

NAVIGATION METHOD IS REQUIRED. It is either "GC" for great circle, or "RL" for rhumb line.
LEG SPEED is useful, but is not required. See footnote (6).

LATITUDE LONGITUDE IS REQUIRED. See footnote (3).
PORT OR LANDMARK NAME is useful, but is not required.
ETA IS REQUIRED. See footnote (1).
ESTIMATED TIME OF DEPARTURE IS REQUIRED, if the ship will lay over at the intermediate point.

A final NAVIGATION METHOD is required to route the ship to its destination. A final LEG SPEED is useful, but not required.

(5) True course is a three-digit group.

(6) Speed is a three-digit group in knots and tenths of knots. For example, 20.5 knots would be written as 205, without a period or decimal point.

(7) If the optional "V" line is used, one or more of the following is required:
/MD/ for physician
/PA/ for physician's assistant
/NURSE/
/NONE/
For example: V/DOCTOR/NURSE//

(8) Any information provided in the remarks line will be stored in the AMVER's automatic data processing system for later review. However, no immediate action will be taken, nor will the information be routinely passed to other organizations. The remarks line can not be used as a substitute for sending information to other search-and-rescue authorities or organizations. However, AMVER will, at the request of other SAR authorities, forward remarks line information to the requesting agencies.

(9) Next report information is not currently used by the AMVER System, but is expected to aid in future development.

If messages are relayed through Canadian Coast Guard Ships no ship charge will be assessed. All AMVER messages forwarded via the stations listed should be addressed to AMVER Vancouver, rather than COAST GUARD New York, to ensure that no charge is applied in delivery.

NAVIGATIONAL AIDS

Positions

All positions expressed in latitude and longitude of the radio aids to navigation listed in this publication are approximate and are taken from the largest scale Canadian Hydrographic Service charts, where available, or British Admiralty charts of the vicinity. Mariners should bear in mind when plotting the position of any given aid that it is preferable to use a chart with the aid already located on it than to plot it from a position given in latitude and longitude.

Reporting Abnormal Operation of Radio Aids

A marine radio aid observed to be operating abnormally should be reported, as soon as possible to a MCTS Centre.

Reports shall be as complete as possible, giving full details including time, date, the position from which the observation was made, and details and description of conditions, such as weather and reception, prevailing at the time of the observation.

It is also requested that ships report abnormal MCTS Centre operation, such as poor quality of marine telephone calls, unreadability of broadcasts, failure to answer calls, etc. To ensure prompt corrective action, such reports must include the date, time and position of ship when the observation was made, together with details of prevailing weather and reception conditions.

Radio Beacons

Marine radio beacons operate in the band 285-325 kHz. Present radio beacon service is available at many important navigational points as indicated in the schedules, to enable ships fitted with direction finding equipment to take a bearing or to take several consecutive bearings which will provide a fix. See Part 2 individual listings. All beacons are operated in continuous service. These beacons are categorized as "landfall" or "homing" radio beacons. The landfall service will provide up to 150NM coverage from salient land points on the Canadian coast. The homing service is to provide a homing capability to specific harbours on ports.

Continuously Operating Radio Beacons

Marine - These radio beacons normally transmit a continuous carrier modulated by a 1020 or 400 Hertz tone. The tone is interrupted 6 or 3 times a minute for identification transmission.

Dual-Purpose Marine/Air - These radio beacons operate in the 200-405 kHz band and are provided for the use of both ships and aircraft. They transmit a continuous carrier which is modulated by a 1020 or 400 Hertz tone. This tone is interrupted six times a minute for the transmission of a one, two or three letter identifier.

Ship Calibrating Radio Beacons

This special service is provided at certain locations as indicated in the radiobeacon listing, to enable ships fitted with direction finders to calibrate their equipment. Ships should advise the nearest MCTS Centre six hours in advance of the time calibration is required. The transmitter will operate for a six hour period on the advertised frequency. The common characteristic of these radio beacons is the Morse letter "T".

Radar Beacon (Racons)

Radar beacons (Racons) may be established at lighthouses, on buoys or at other specific charted locations ashore or afloat to enhance identification and detection range of these features by radar.

Some Racons operate only in the X band 9320-9500 MHz, whilst others are dual band X/S, X band plus S band of 2920-3100 MHz. It should also be noted that the slow sweep (SS) type of Racon will give a response every 72-120 seconds, whilst the frequency agile Racon (FAR) will respond more frequently.

The Racon signal appears on the radar display as a line commencing at the approximate range of the Racon and extending outwards along its line of bearing from the ship toward the limit of the display. The signal displayed may be a solid line or it may be broken into a code consisting of a series of dots and dashes as shown in relevant publications.

INSPECTION OF RADIO APPARATUS

The Canadian Coast Guard on behalf of Transport Canada, is responsible for the conduct of ship radio inspections pursuant to the Canada Shipping Act. Queries concerning the standards governing inspections of radio apparatus fitted in ships for safety purposes may be sent to:

❖Project Manager, Ship Radio Inspection
Fisheries and Oceans Canada
Canadian Coast Guard
200 Kent Street, 7th Floor, Station S036
Ottawa, Ontario
K1A 0E6
Tel: (613) 998-1520 Fax: (613) 998-9258
E-Mail: daltonp@dfo-mpo.gc.ca

❖Owners and masters of Canadian ships, that are required to be fitted with a radio installation under the provisions of the Canada Shipping Act, are reminded that they are responsible to ensure that the installation is inspected by a Radio Inspector not more than one month before the ship first proceeds to sea and at least every year thereafter in order that they may be issued with an appropriate Safety or Inspection Certificate.

A non-Canadian ship which does not have a valid Radio Safety Certificate on board may be detained by a port Customs Officer until a valid certificate has been obtained.

A fee for the conduct of ship radio inspections is levied in accordance with the Ship Radio Inspection Fees Regulations. The fee is payable upon completion of the inspection.

Applications for radio inspections of Canadian ships should be filed with the Canadian Coast Guard (CCG). The form entitled: Application for Radio Inspection, Compulsory Fitted Ships (82-0643) should be used for this purpose. Such request by owners, agents or masters should be received by the CCG at least three days (72 hours) in advance of the date requested for inspection.

The owners, agents or masters of Canadian ships requiring radio inspection while outside of Canada should make application by fax or letter to:

Transport Canada
Director General
Marine Safety Directorate
Tower C, Place de Ville
330 Sparks Street
Ottawa, Ontario
K1A 0N5
Telephone: (613) 998-0611
Fax: (613) 954-1032

Non-Canadian ships (except Liberian ships) may obtain a Cargo Ship Safety Radio Certificate (GMDSS) in Canada. Applications should originate with the owners, ship agents or masters of the ships concerned and be supported by confirmation from the Consul or other official representative of the country in which the ship is registered. Confirmation shall be in writing. It is the responsibility of the owner, agent or master to contact the Consul or official representative and arrange to submit the necessary confirmation to the local CCG inspection office. Where time is limited, a verbal request for an inspection may be accepted from the Consul or official representative (a person who has a document from an Administration giving him the official power to act on their behalf), provided that the confirmation is submitted later.

Applications for radio inspections of Canadian ships wintering in U.S. Great Lakes ports should be made by the owners, agents or masters on F.C.C. form 809 and filed directly with the FCC Field Engineering office nearest to the port of which the inspections are desired. Copies of form 809 are available from any of the FCC offices serving the Great Lakes.

❖**Ship Radio Inspection Contacts:**

Hay River, **Northwest Territories,** X0E 0R9
Supervisor of Technical Maintenance
Fisheries and Oceans Canada
Canadian Coast Guard Ships Electronics Workshop
42037 MacKenzie Highway
Telephone: (867) 874-5530
Fax: (867) 874-5532

Lazo, **British Columbia,** V0R 2K0
Supervisor of Technical Maintenance
Fisheries and Oceans Canada
Canadian Coast Guard Ships Electronic Workshop
299 Wireless Road
P.O. Box 220
Telephone: (250) 339-5211
Fax: (250) 339-7922

Richmond, **British Columbia,** V6X 3B7
Supervisor of Technical Maintenance
Fisheries and Oceans Canada
Canadian Coast Guard Ships Electronic Workshop
5560 Garden City Road
Telephone: (604) 666-2311
Fax: (604) 666-1786

Ucluelet, **British Columbia,** V0R 3A0
Supervisor of Technical Maintenance
Fisheries and Oceans Canada
Canadian Coast Guard Ships Electronic Workshop
P.O. Box 190
Telephone: (250) 726-4335
Fax:(250) 726-7234

Victoria, **British Columbia,** V8V 4V9
Supervisor of Technical Maintenance
Fisheries and Oceans Canada
Canadian Coast Guard Ships Electronic Workshop
25 Huron Street
Telephone: (250) 480-2644
Fax: (250) 480-2666

North Island, **British Columbia,** V0N 2R0
Supervisor of Technical Maintenance
Fisheries and Oceans Canada
Canadian Coast Guard Ships Electronic Workshop
#3 1488 Beach Drive
P.O. Box 1180
Port McNeill
Telephone: (250) 956-3244
Fax: (250) 956-4021

Prince Rupert, **British Columbia,** V8J 4B7
Supervisor of Technical Maintenance
Fisheries and Oceans Canada
Canadian Coast Guard Ships Electronic Workshop
Senior Technician
P.O. Box 906
Telephone: (250) 627-3072
Fax: (250) 624-6518

❖***TRANSPORT CANADA REQUIREMENTS FOR SHIP RADIO STATIONS***

The *Ship Station (Radio Regulations, 1999*, prescribe the radio stations to be fitted onboard commercial vessels, while the *Ship Station (Radio) Technical Regulations, 1999*, describe the technical characteristics, installation and operation of compulsory-fitted radio stations.

The following table summarizes new requirements of the *Ship Station (Radio) Regulations, 1999*, however, the actual Regulations should be consulted and are available at: http://www.tc.gc.ca/Actsregs/csa-Immc/Toccsa.html

❖Ship Station (Radio) Regulations, 1999

☐ Ships ≥ 20m and certified to carry >12 passengers, or ships ≥300gt
☐ All other ships

***Italics** represent new requirements to be complied with by April 1, 2001, unless otherwise indicated.*

- Requirements for Safety Convention ships are not shown as they must comply with the Safety Convention
- Requirement for ships on inland voyages and minor waters voyages are not shown since there are no new requirements
- Regulations do not apply to a pleasure yacht not carrying a master or crew for hire, or a tow-boat in a booming ground.

Equipment	Sea Area A1 or VHF Area	Sea Area A3	Sea Area A4
VHF Radio with DSC (SSRR)	***Yes*** *-unless ship operates within a VTS Zone, then will have until January 31, 2003, or until the sea area A1 is completed, whichever is latest*		
	Yes ***- by February 1, 2003, or after sea area A1 completed, whichever is latest*** • ***ships ≥8m in length and of closed construction,*** • ***ships carrying >6 passengers, and*** • ***tow boats*** -exempted are ships on a home-trade voyage, class IV in a VTS Zone -current VHF radiotelephone provisions remain in effect until then		
Inmarsat Ship Earth Station with EGC, and MF Radio with DSC, Or	no	***Yes*** ***(EGC only required if outside NAVTEX range)***	***Yes*** ***MF/HF option only***
MF/HF Radio with DSC and NBDP (SSRR)	no		
NAVTEX Receiver (no change to current requirement-SSRR)	no	**Yes**	no
	no	**Yes** • if ≥ 150gt tow boat • if ≥ 300gt cargo ship • if ≥ 24m fishing, or • if passenger ship	no
EPIRB (float-free) (SSRR)	**Yes**		
	Yes • if ≥20m (and beyond home trade IV voyage) • if tug >5gt and <20m if voyage >50 miles long and >2 miles from shore • ***if ≥ 15gt and go beyond home-trade III voyage limits i.e., 20 miles from shore by April 1, 2001*** • ***if ≥ 8m and go beyond home-trade III voyage limits on April 1, 2002*** (Note: EPIRB does not have to be float-free if less than 15gt) -exempted are ships on home-trade voyages, class IV or minor waters voyages		
Radar Transponder(s) (SARTs) (SSRR, Life Saving Equipment Regulations, Large Fishing Vessel Inspection Regulations, and Small Fishing Vessel Inspection Regulations)	no	***Yes*** ***2 are required, unless ship is certified to carry ≤ 12 passengers and is <500gt, then carry 1***	
	Yes, if 20m in length or over on > HTII voyage		
Survival Craft VHF Portable Radio (Life Saving Equipment Regulations, Large Fishing Vessel Inspection Regulations)	**Yes** 3 are required, unless ship is certified to carry ≤ 12 passengers and is <500gt, then carry 2 ***(new requirement for ships on home-trade voyages, class III)***		
	no	**Yes** 3 are required if ship is certified to carry >12 passengers and is >5gt	
Reserve Source of Energy	**Yes**		
	Yes if ship is ≥20m, is carrying more than 6 passengers, or is a tow-boat		

DSC: digital selective calling **EGC**: enhanced group calling **NBDP**: narrow band direct printing

Additional requirements: emergency procedures card, operating and routine maintenance manuals, consumable spare parts, radio publications, time piece, weather facsimile (Arctic), spare antennas (some ships ≥20m).

Canadian Coast Guard / Garde côtière canadienne

APPLICATION FOR RADIO INSPECTION COMPULSORILY FITTED SHIPS

CONDITIONS OF INSPECTION

a) The Department of Transport is responsible for the conduct of ship radio inspections pursuant to the Canada Shipping Act. The Minister of Transport has appointed Canadian Coast Guard radio inspectors to carry out radio inspections.

b) An application for inspection shall be submitted to the Canadian Coast Guard office nearest to the desired port of inspection at least 3 days in advance of the date on which the inspection is to be made. When an inspection is requested of a ship registered elsewhere than in Canada, the application must be accompanied by a letter from the Consul or other official representative of the Administration concerned in accordance with Regulation 13, Chapter 1, SOLAS 1974, or Protocol 1988.

c) The ship's electrical power shall be available and the Radio Officer or other person with authority to operate the radio station shall be on board at the date and time determined for the inspection.

d) Fees are payable as outlined in the Ship Radio Inspection Fees Regulations (SRIFR).

DEMANDE D'INSPECTION RADIO-NAVIRES OBLIGATOIREMENT POURVUS DE LA RADIO

CONDITIONS D'INSPECTION

a) Le Ministère des Transports est responsable de la conduite des inspections radio de navires en vertu de la Loi sur la marine marchande du Canada. Le Ministre des Transports a désigné les inspecteurs radio de la Garde côtière canadienne pour effectuer ces inspections radio.

b) Une demande d'inspection doit être envoyée au bureau de la Garde côtière canadienne le plus près du port où l'inspection doit avoir lieu, au moins 3 jours avant la date de l'inspection. Lorsque l'inspection est demandée en vue de la délivrance d'un navire immatriculé ailleurs qu'au Canada, la demande doit être accompagnée d'une lettre du Consul ou d'un autre représentant officiel de l'Administration en cause, conformément à la règle 13 du chapitre I, SOLAS 1974 ou protocole de 1988.

c) L'énergie électrique principale du navire doit être disponible et l'officier radio ou une autre personne autorisée à faire fonctionner la station radio doit être à bord à la date et à l'heure pour l'inspection.

d) Des droits d'inspection sont exigibles selon le Règlement sur les droits d'inspection des installation radio de navire (RDIRN).

Application is hereby made for a radio inspection for the ship indicated below in accordance with Canadian Law and International Convention or Treaty as applicable. If after inspection the radio apparatus is found to comply with the requirements, it is requested that the following document(s) be issued:

Please insert check mark in appropriate box.

Nous demandons par la présente l'inspection des appareils radio du navire décrit ci-après conformément à la Loi canadienne et à la convention internationale ou au traité international, selon le cas. Si à la suite de l'inspection, il est constaté que le matériel radio satisfait aux prescriptions, nous désirons que les documents ci-après soient délivrés.

Veuillez indiquer la mention qui s'applique.

Cargo Ship Safety Radio Certificate (GA/DSS)	☐	Certificat de sécurité radioélectrique pour navire de charge (SM/DSM)
Letter of Certification concerning a radio installation on board a Non-Convention cargo ship to allow Customs Clearance for an international voyage	☐	Lettre de certification relative à une installation radio à bord d'un navire de charge ne ressortissant pas à la convention de sécurité afin de permettre le dédouanement pour un voyage international
Report of Inspection to the Chairman, Board of Steamship Inspection, concerning a radio installation on board a passenger ship engaged in international voyages	☐	Rapport au président du bureau d'inspection des navires à vapeur, relatif à une installation de radio à bord d'un navire à passagers qui accomplit des voyages internationaux
Report of Inspection to a Steamship Inspector concerning Lifeboat radio apparatus for a cargo or passenger ship	☐	Rapport à un inspecteur de navires à vapeur, relatif aux appareils radio d'embarcation de sauvetage d'un navire de charge ou à passagers
Radio Inspection Certificate (Sea Coast of Canada)	☐	Certificat d'inspection radio (Côtes du Canada)
Radio Inspection Certificate (Great Lakes)	☐	Certificat d'inspection radio (Grands lacs)
Radio Inspection Certificate (GA/DSS)	☐	Certificat d'inspection radio (SM/DSM)

Name of Ship – Nom du navire	Call Sign – Indicatif d'appel	Port Registry – Port d'immatriculation	Official No. – N° officiel / IMO No. – N° de l'OMI

Gross Tonnage / Jauge brute	Circle appropriate type – encercler le type approprié	Inspection Requested / Inspection requise	Date	Sailing / Appareillage	Date
Length – Longueur	Fishing – Pêche, de pêche; Cargo – Navire de charge; Tanker – Navire citerne; Dining Lnch – Diner de midi; Passenger – Navire à passagers; Fish Processing – Traitement de poisson; Towing – Remorqueur; Pleasure – Navire de plaisance		Time – Heure		Time – Heure

Name of Agent – Nom de l'agent	Tel. No. – N° de tél.	Port, dock or quay at which survey is to be conducted Port, bassin ou quai où l'inspection doit avoir lieu
Address – Adresse		I have read the "Conditions of Inspection" and agree to meet them J'ai lu les «Conditions d'inspection» et je consens à m'y conformer
Name of Radio Services Representative Nom du représentant du service d'entretien de la station	Tel. No. – N° de tél.	
Address – Adresse		Date / Signature of Agent or Master Signature de l'agent ou du capitaine

A2 (9441-01-301)

WORLDWIDE RADIO NAVIGATIONAL WARNING SYSTEM

(a) NAVAREA Warnings

In accordance with the decisions of the Ad Hoc Joint IHO/IMO Committee on Radio Navigational Warnings, the United States conditionally, on January 1, 1977, accepted responsibility for NAVAREAS IV and XII in the Worldwide Radio Navigational Warning System.

NAVAREA IV covers the North Atlantic Ocean West of 35°W and north of 7°N. These messages are broadcast from: Boston (NMF) at 0140 UTC on 6314, 8416.5 and 12579 FIB and at 1630 UTC on 8416.5, 12579 and 16806.5 FIB.

NAVAREA XII covers the North Pacific Ocean east of 180° and north of the equator, plus the area north of 3° 25's and east of 120°W. These messages are broadcast by Honolulu (NMO) at 0330 and 1730 UTC daily, on 8416.5, 12579 and 22376 kHz FIB.

The area warning system should normally be sufficient for the ships which proceed along the main oceanic routes of an Area. However, in some waters knowledge of the coastal warnings may prove necessary.

(b) Subject Matter of Warnings

The following list of messages considered suitable for transmission as warnings in this service is not exhaustive and should only be regarded as a guideline. Furthermore, it presupposes that sufficiently precise information about the items has not previously been disseminated in Notices to Mariners.

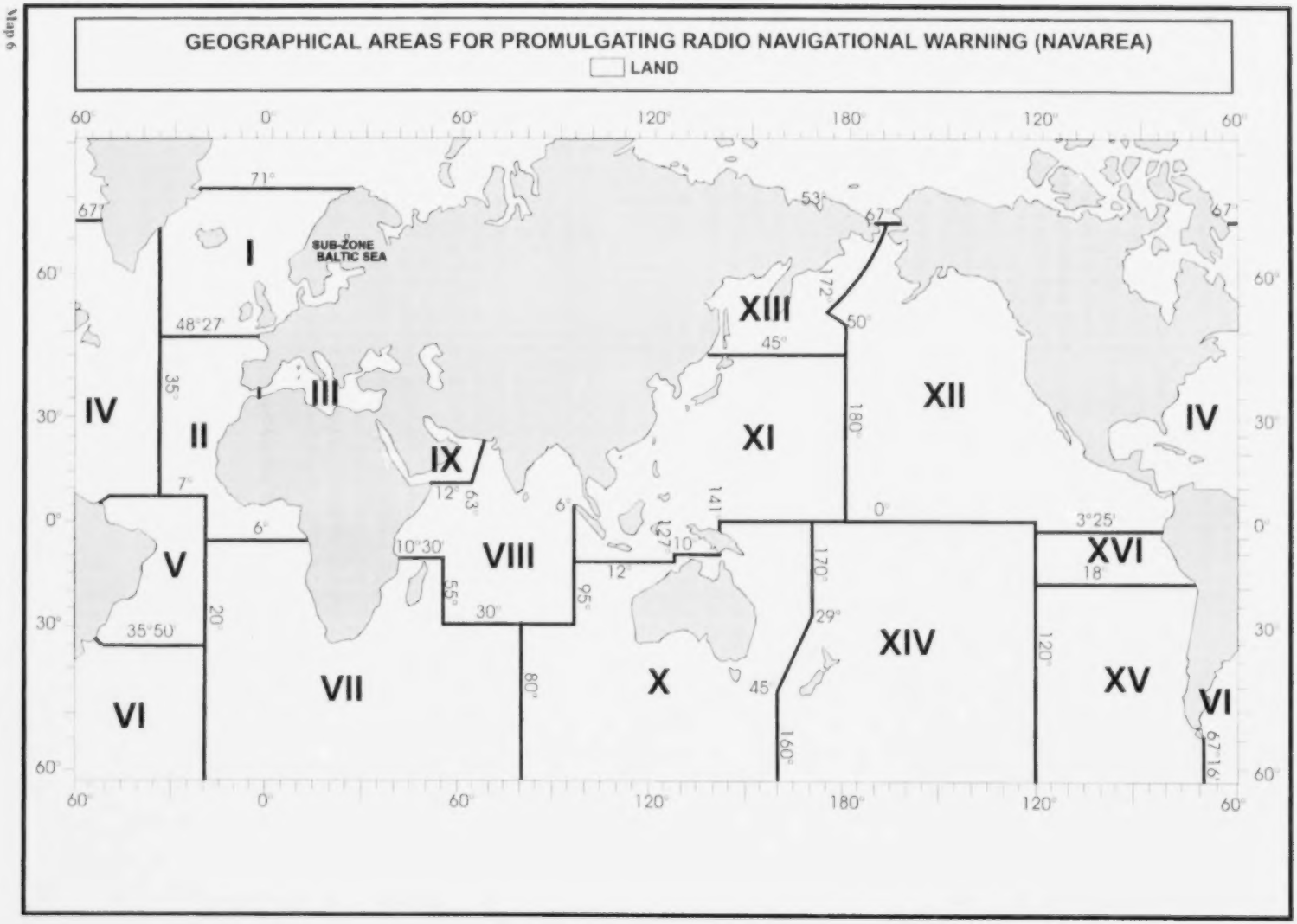
(i) casualties to lights, fog signals and buoys affecting main shipping lanes;
(ii) the presence of dangerous wrecks in or near main shipping lanes and, if relevant, their marking;
(iii) establishment of major new aids to navigation or significant changes to existing ones when such establishment or change might be misleading to shipping;
(iv) the presence of large unwieldy tows in congested waters;
(v) drifting mines;
(vi) areas where search and rescue (SAR) and anti-pollution operations are being carried out (for avoidance of such areas);
(vii) ships and aircraft on or over the open sea reported in distress, seriously overdue or missing;
(viii) the presence of newly discovered rocks, shoals, reefs and wrecks likely to constitute a danger to shipping, and, if relevant, their marking;
(ix) unexpected alteration or suspension of established routes;
(x) cable or pipe-laying activities, the towing of large, submerged objects for research or geophysical exploration, the employment of manned or unmanned submersibles, or other underwater operations constituting potential dangers in or near shipping lanes;
(xi) establishment of off-shore structures in or near shipping lanes;
(xii) significant malfunctioning of radio-navigation services;
(xiii) information concerning special operations which might affect the safety of shipping, sometimes over wide areas, e.g. naval exercises, missile firings, space missions, nuclear tests, etc. These should be initially promulgated by the Area Co-ordinator concerned not less than five days in advance of the scheduled event, wherever possible. The messages should be repeated as considered necessary until the event is completed.
(....) Navigational warnings broadcast within the Area should be consecutively numbered throughout the calendar year.

(c) Coastal Warnings

Coastal warnings are concerned with information listed in paragraphs (a) above which is sufficient for mariners to know when they enter a given Sub-area or region. However, coastal warnings should not be restricted to main shipping lanes.

(d) Local Warnings

Local warnings supplement the coastal system by giving detailed information on aspects which the ocean-going ship normally does not require. However, local warnings may be issued in the national language only.


GEOGRAPHICAL AREAS FOR PROMULGATING RADIO NAVIGATIONAL WARNING (NAVAREA)
LAND
SUB-ZONE BALTIC SEA
I
II
III
IV
V
VI
VII
VIII
IX
X
XI
XII
XIII
XIV
XV
XVI
60°
0°
60°
120°
180°
120°
60°
30°
0°
30°
60°
71°
67°
48°27'
35°
7°
6°
10°30'
12°
63°
6°
55°
30°
95°
80°
12°
127°
10°
141°
53°
67°
72°
50°
45°
180°
0°
3°25'
18°
170°
29°
45°
160°
120°
67°16'
35°50'
20°

PART 5

Environment Canada Marine and Ice Warning and Forecast Programs

GENERAL

Background

❖The Meteorological Service of Canada (MSC) of Environment Canada and the regional Meteorological Service Branch offices of Environment Canada operate Canada's weather service. MSC offices offer a broad range of products and services that are designed to help mariners make informed decisions on how weather will affect them. The Canadian Coast Guard (CCG) plays an important role in disseminating forecasts and warnings and in collecting and relaying weather information from volunteer observers and ships.

The constant stream of data coming from volunteer observers, ships, weather buoys, automatic stations, and lighthouses is supplemented by satellite imagery, weather radar and a full set of numerical weather products adapted for marine operations.

Marine Warning Program

Warnings of extreme weather events that pose a threat to life and property at sea such as strong winds, rough seas, storm surges, severe thunderstorms, and freezing spray shall be issued for the offshore economic zone, the St. Lawrence Seaway, and major inland waters.

Major inland waters are defined as having significant marine activity and where time to reach shore is comparable to the marine weather warning lead time. The criteria for the issuance of weather warnings are based on national guidance, but determined regionally based on appropriate climatology and the character of the regional marine community.

Table 1: Marine Warning types whose criteria are determined **nationally**

	Warning Types	Warning Criteria
1.	**Gale wind warning:**	Sustained winds between 34-47 kts inclusive
2.	**Storm force wind warning:**	Sustained winds between 48-63 kts inclusive
3.	**Hurricane force wind warning:**	Sustained winds 64 knots and above
*	**Ice Warnings**	Sea ice poses a hazard to marine activity. Warnings of ice hazards will consist of the **ice/no-ice boundary** and advice on **unexpected and extreme hazards within the ice pack**. More details about the ice hazards will be found in the **Canadian Ice Services section.**

Table 2: Marine Warning types whose criteria are determined **regionally** (see the regional annexes)

4.	**hall Craft Wind Warning**	
5.	**Small Craft Thunderstorm Advisory**	
6.	**Waterspout Advisory**	
7.	**Freezing Spray**	
8.	**High Water level**	(Surge that is expected to exceed a critical level for a specific duration).

Marine Forecast

Marine forecasts are issued for the offshore economic zone, the St. Lawrence Seaway and major inland waters. Forecast parameters include wind, visibility, precipitation, freezing spray, sea ice edge and seastate (as appropriate). Forecast for localized areas are not considered a basic level of service. An accompanying synopsis to add clarity to the marine forecast products is produced for the primary forecast issues while a coded MAFOR may be added to the synopsis. (See Table 3,

MAFOR). Forecasts for up to 48 hours in advance are normally provided on a regularly scheduled basis twice per day as part of a continuous program.

Marine forecast are written to describe the weather for the marine area overall and may not pinpoint local conditions that can occur due to factors such as coastal effects or irregular wind regimes associated with, as example, thunderstorms.

Table 3: MAFOR DECODE TABLE

MAFOR YYG$_1$G$_1$ (NAME OF LAKE OR SEAWAY) IGDF$_M$W$_1$

KEYWORD (Indicating marine forecast)	DAY OF MONTH (UTC)	TIME (UTC) FORECAST PERIOD BEGINS	SOLIDUS	NAME OF LAKE OR SEAWAY	GROUP ID	FORECAST PERIOD	WIND DIRECTION	WIND SPEED	FORECAST WEATHER	SIGNIFICANT WAVE HEIGHT IN FEET
	YY	G$_1$G$_1$				G	D	F$_M$	W$_1$	
MAFOR	06	12	(/)	ERIE	1	6	8	3	0	WAVES 5 TO 10 FEET

G- FORECAST PERIOD
0 - Conditions at beginning of forecast period
1 - Valid for 3 hours
2 - Valid for 6 hours
3 - Valid for 9 hours
4 - Valid for 12 hours
5 - Valid for 18 hours
6 - Valid for 24 hours
7 - Valid for 48 hours
8 - Valid for 72 hours
9 - Occasionally

D- WIND DIRECTION
0 - Calm
1 - Northeast
2 - East
3 - Southeast
4 - South
5 - Southwest
6 - West
7 - Northwest
8 - North
9 - Variable

Fm - WIND SPEED, **Beaufort number**	
0 - 0 to 10 knots	0-3
1 - 11 to 16 knots	5
2 - 17 to 21 knots	5
3 - 22 o 27 knots	6
4 - 28 to 33 knots	7
5 - 34 to 40 knots	8
6 - 41 to 47 knots	9
7 - 48 to 55 knots	10
8 - 56 to 63 knots	11
9 - 64 knots and above	12

W$_1$ - FORECAST WEATHER
0 - Moderate of good visibility, more than 3 nautical miles
1 - Risk of accumulation of ice on superstructures
2 - Strong risk of accumulation of ice on superstructure
3 - mist (visibility 5/8 to 3 nm)
4 - Fog (visibility less than 5/8 nm)
5 - Drizzle
6 - Rain
7 - Snow, or rain and snow
8 - Squally weather with or without showers
9 - Thunderstorms

Ice Forecast

For sea ice, useful forecast time scales are generally much longer. Basic forecasts for the general sea-ice conditions include weekly, monthly and seasonal time frames.

Monitoring the Forecast

Forecasts are monitored, and amended as necessary, to reflect unexpected or changing weather conditions according to criteria based on the following principles:

1. when safety or security is at risk,
2. when inconvenience to the marine community will be extensive or,
3. when the product could adversely affect the credibility of the program.

Marine Forecast and Ice Areas

Marine forecasts and ice bulletins are issued for marine and ice areas as outlined in the regional maps. The sizes and boundaries of these areas are determined regionally based on the following considerations:

1. marine traffic density,
2. the ability to forecast to the proposed resolution,
3. the degree to which, climatologicaly, the marine weather is at variance, and
4. the ability to distribute the information effectively to the marine community.

Current Conditions

Current weather data is available to Canadians for their local area. The frequency and quality of the data will be consistent with the standards established by the World Meteorological Organization (WMO). The data may include as appropriate:

Current temperature, wind speed and direction, atmospheric pressure, relative humidity, sky condition, precipitation type, restrictions to visibility, sea state and other derived data in the public concern such as wind-chill and humidex.

General information on current sea-ice will be provided to the marine community once a week to provide an adequate planning tool for those considering entering ice encumbered waters.

Emergency Response

Meteorological support is provided during emergencies and include the provision of meteorological information and forecasts. In the case of a pollution event, Environment Canada adheres to the "polluter pay" policy for the provision of all services. Where agreements are in place, Environment Canada will make its distribution systems available to transmit vital information during emergency situations.

Delivery of Marine Warning and Forecast Services

Delivery of marine warning and forecast services to Canadians is primarily by mass communication in order to reach the greatest population base through technology available to most Canadians. The following principles apply, regardless of the specific available technologies:

a. Basic services to Canadians shall be delivered primarily by mass distribution in partnership with media, relying on current and developing technologies in radio, television, newspaper, and the Internet. These distribution mechanisms represent the primary methods by which most Canadians receive and will receive their weather information, now and in the future.

b. Marine and Environmental Advisories, Watches and Warnings are distributed through various mechanisms including partnerships with national and regional media distributors and local emergency measures organizations.

The Voluntary Observing Ship (VOS) Program

The VOS program is organized for the purpose of obtaining weather and ice, and oceanographic observations from moving ships. An international program under the World Meteorological Organization (WMO) auspices, the VOS has near 8,000 vessels participating from 60 nations. It is part of the WMO Global Observing System of the World Weather Watch. Canada has near 235 vessels participating. It closely follows WMO guidelines for VOS programs. The Canadian program is supported by 6 full-time Port Meteorological Officers (PMO). The national program office in Toronto manages the program and oversees PMO activities. The office also maintains a VOS Program Computerized Data Management System to record PMO ship visits, vessel mailing addresses, vessel equipment inventories and other information about vessel reports. Any vessel willing to take and transmit observations in marine areas where Environment Canada prepares weather forecasts (see the regional annexes) can join the program. The importance of ship reports cannot be overstated. Without your participation in VOS, there would be vast marine areas without data, making marine forecasting nearly impossible for these areas. We thank ship officers for their fine work, dedication, and commitment.

Check out the SEAS program with your local Port Meteorological Officer. In the SEAS program, observations are sent via INMARSAT C and the cost of transmission is absorbed by a consortium of countries interested in timely reports from the seas of the world.

The WMO establishes the ships synoptic code, and procedures and standards for the collection and dissemination of information worldwide. The WMO also maintains information about countries and vessels participating in the program.

Port Meteorological Officers (PMOs)

PMOs spend most of their time visiting ships in support of the VOS program. This is to encourage vessels to report weather and ice, to instruct observers about procedures and the use of code; to supply observing forms, handbooks (free of charge!); to calibrate equipment; and, in some cases, to install, on loan, meteorological or oceanographic instrumentation. A priority of the PMO is recruiting new vessels into the VOS program.

If a PMO visits your ship, remember to ask questions about observing and coding, and reporting weather and ice. Keep the PMO informed of your mailing address. Discuss forecast, warnings, facsimile products, especially if you have specific problems. The PMO will contact the appropriate party for investigation.

❖

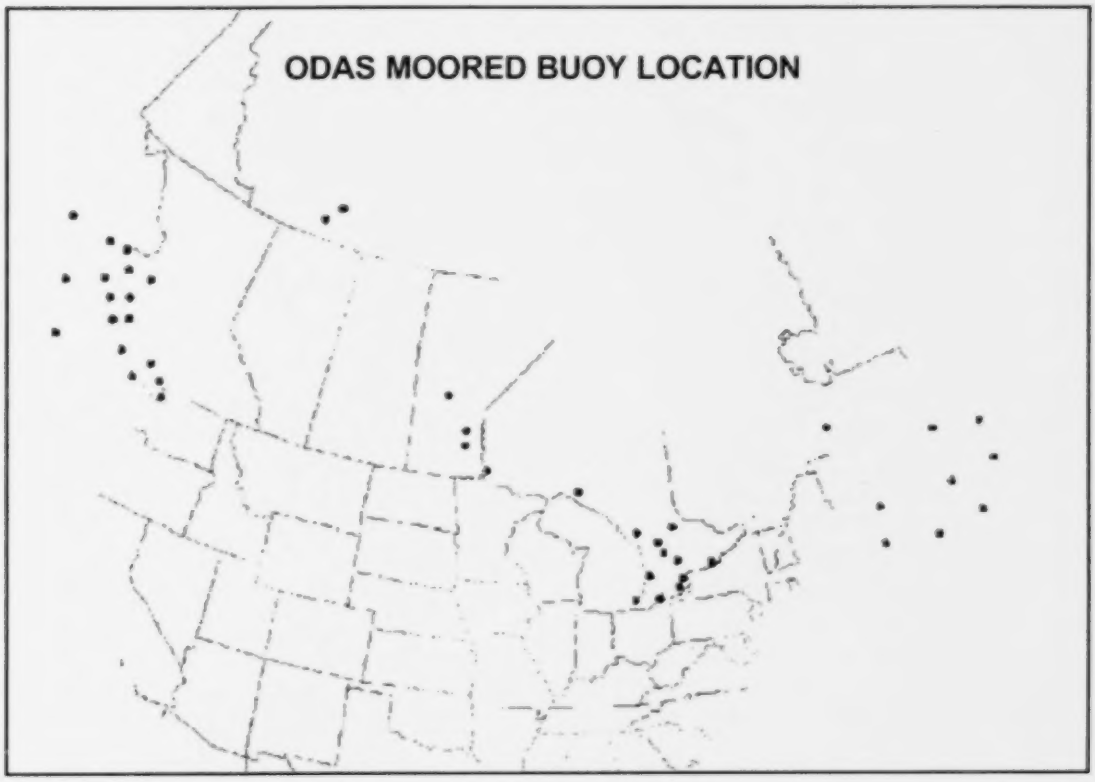
Great Lakes	**Atlantic - Maritimes**	**Atlantic - Newfoundland**
Ron Fordyce, Supt Marine Data Unit **Rick Shukster**, PMO/Buoy Specialist Environment Canada, MSC 100 East Port Blvd Hamilton, Ontario L8H 7S4 Tel: (905) 312-0900/0933 Fax: (905) 312-0730 Email: Ron.Fordyce@ec.gc.ca Rick.Shukster @ec.gc.ca	**Randy Sheppard**, PMO Environment Canada, MSC 45 Alderney Drive, 16th floor Dartmouth, Nova Scotia B2Y 2N6 Tel: (902) 426-6703 Cell: (902) 456-6927 Fax: (902) 426-1595 Email: Randy.Sheppard@ec.gc.ca	**Jack Cossar**, PMO Environment Canada, MSC Bldg 303 Pleasantville P.O. Box 21130, Postal Station B St. John's, Newfoundland A1A 5B2 Tel: (709) 772-4797 Fax: (709) 772-2593 Email: Jack.Cossar@ec.gc.ca
St. Lawrence – Quebec	**Pacific / Yukon**	**Great Slave Lake / Western Arctic**
Richard Dupuis Monitoring & Technologies Environment Canada, MSC 100 Alexis Nihon Blvd, Suite 300 Ville St Laurent, Québec H4M 2N8 Tel: (514) 283-1635 Fax: (514) 496-1867 Email: Richard.Dupuis@ec.gc.ca	**Mike Riley** ,PMO Environment Canada, AES 700-1200 W 73rd Ave. Vancouver, British Columbia V6P 6H9 Tel: (604) 664-9136 Fax: (604) 664-9195 Email: Mike.Riley@ec.gc.ca	**Ben Lemon** Monitoring and Systems Environment Canada, MSC Twin Atria Building, 2nd floor 4999, 98 avenue Edmonton, Alberta T6B 2X3 Tel: (403) 951-8813 Email: Ben.Lemon@ec.gc.ca

Manitoba Lakes / Lake Athabaska
Barry Funk Monitoring and Systems Environment Canada, MSC 123 Main Street, Suite 150 Winnipeg, Manitoba R3C 4W2 Tel: (204) 984-2018 Email: Barry.Funk@ec.gc.ca

Buoys

In order to complement the observational network, Environment Canada operates a network of buoys across the country. This data becomes part of the collection of weather reports sent to the distribution network and is used to improve marine forecasting. The location, WMO identifiers and names of the Environment Canada buoys are given in the regional annexes.

Mariners are requested to use caution when approaching buoys as mooring chains are normally not detectable from a ship and can be damaged or even cut if there is contact, what will make the buoy loose and cause a costly recovery of the platform. Please keep the Regional PMO's informed of any incidents involving buoys.



MAREP (MArine REporting Program)

MAREP gives mariners the opportunity to informally report their local weather conditions and to receive up-to-date weather forecasts and warnings. MAREP stations are generally operated on a semi-volunteer basis by a member of the marine community who is concerned about marine safety. The stations operators are in regular contact with the Marine Weather Forecaster of the area.

Since the program is informal, the individuals at the stations do not provide a 24 hour service, but are likely available during day-time and early evening hours.

PACIFIC COAST

Marine Weather Forecast Program

The Pacific Weather Centre issues 4 forecasts per day at 0400, 1030, 1600 and 2130. The forecasts are issued at the same time throughout the year. The forecasts are valid for 24 hours and include an outlook for the next 24 hours. Visibilities are included only when it is expected to be less than one nautical mile.

Marine Weather Warnings (refer to Table 1, Marine Warning type and criteria)

The status of any warning will be highlighted in the regular forecasts. When conditions warrant, separate messages are issued for gale, storm and hurricane force wind warnings. However, no separate message is issued for a small craft warning. Rather, they are noted in the body of the regular forecast. Note that small craft warnings are issued only from Good Friday to Remembrance Day and for the inner waters only, that is, Queen Charlotte Strait, Johnstone Strait, Strait of Georgia, Howe Sound, Haro Strait and Juan de Fuca Strait.

	Warning Types	Warning Criteria
4	**Small Craft Wind Warning:**	Sustained winds between 20 & 33 kts
5	**Small Craft Thunderstorm Advisory:**	
6	**Waterspout Advisory** :	
7	**Freezing Spray:**	Ice accretion rate of 2 cm/24 hrs

Weather Bulletins

Local weather observations are available for several stations including lighthouses, ocean buoy, automatic weather reporting stations and other stations part of the regular weather network. The broadcast listing provides more information on available stations and broadcast times.

MAREP

MAREP operators are in regular contact with the Marine Weather Forecaster at the Pacific Weather Centre. MAREP reports are also received by any MCTS Centre on VHF channels 26 or 84 at any time, subject to normal priorities of communication. These reports will be immediately sent to marine forecasters at the Pacific Weather Centre and will be included on CMB if they are significantly different from conditions mentioned in the forecast or from nearby reports.

The MAREP stations of Cape Scott and Bonilla Island will operate from October 1 to April 30. Kyuquot will operate from May 1 to September 30.

WEST COAST MAREP STATIONS

contact on VHF MAREP **WORKING CHANNEL 69** or on alternate VHF channels 10 and 78A

Station	Call Sign	Weather Information For
Bonilla Island Lightstation	XLA787	Dixon Entrance East, Hecate Strait, Central Coast
Cape Scott Lightstation	VGL35	Queen Charlotte Sound, Central Coast Queen Charlotte Strait, West Coast Vancouver Island North
Kyuquot	VGL34	West Coast Vancouver Island North West Coast Vancouver Island South

❖**Buoy Positions - Northeast Pacific**

WMO #	NAME	LAT	LONG	WMO #	NAME	LAT	LONG
46004	Middle Nomad	50 55.0 N	136 05.0 W	**46183**	North Hecate Strait	53 37.0 N	131 06.3 W
46036	South Nomad	48 21.2 N	133 55.3 W	**46184**	North Nomad	53 54.0 N	138 52.0 W
46131	Sentry Shoal	49 54.4 N	124 59.1 W	**46185**	South Hecate Strait	52 24.4 N	129 47.0 W
46132	South Brooks	49 43.9 N	127 55.4 W	**46204**	West Sea Otter	51 22.0 N	128 45.1 W
46145	Central Dixon Entrance	54 23.0 N	132 27.0 W	**46205**	West Dixon Entrance	54 10.0 N	134 20.0 W
46146	Halibut Bank	49 20.4 N	123 43.6 W	**46206**	La Perouse Bank	48 50.1 N	125 59.9 W
46147	South Moresby	51 49.3 N	131 12.1 W	**46207**	East Dellwood	50 51.6 N	129 54.6 W
46181	Nanakwa Shoal	53 50.0 N	128 49.9 W	**46208**	West Moresby	52 30.0 N	132 42.0 W

Victoria Weatheradio Canada

Stations	CALL SIGN	Frequency (MHz)	Note
Saltspring Island	**CFA240**	162.400	Continuous broadcast

Environment Canada
Atmospheric
Environment Service
Environnement Canada
Service de l'Environnement
Atmosphérique
MARINE FORECAST AREAS
PACIFIC WATERS
PACIFIC
OCEAN
50°
130° W
125° W
Vancouver
Island
Vancouver
VICTORIA
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NAVTEX and Marine Forecasts (year round products unless noted)

❖**Coast Guard Broadcast Table:** Transmission times (all times PST)

Frequency	Comox	Prince Rupert	Tofino	Victoria
WX1	CMB	CMB	0450, 1050, 1650, 2250, CMB	
WX2	CMB	CMB	0450, 1050, 1650, 2250, CMB	
WX3		CMB	0450, 1050, 1650, 2250, CMB	CMB
Ch21B	CMB	CMB	0450, 1050, 1650, 2250, CMB	CMB
2054J3E		0505, 1105, 1705, 2305	0450, 1050, 1650, 2250	
518F1B		0030, 0830, 1230, 2030	0110, 0510, 1310, 1710	

❖**Weather Forecast Products**

Area	Area name	NAVTEX	Synopsis, forecasts and warnings
1	Explorer	**Tofino** 518F1B	**Comox** WX1, WX2 **Tofino** WX1, WX2, WX3, Ch21B, 2054J3E
2	Bowie	**Prince Rupert** 518F1B	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E
3 4	Dixon Entrance West West Coast Charlotte	**Prince Rupert** 518F1B	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E
5	Queen Charlotte Sound	**Prince Rupert** 518F1B **Tofino** 518F1B	**Comox** WX1, WX2 **Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E **Tofino** WX1, WX2, WX3, Ch21B, 2054J3E
6	West Coast Vancouver Island North	**Tofino** 518F1B	**Comox** WX1, WX2 **Tofino** WX1, WX2, WX3, Ch21B, 2054J3E **Victoria** WX3
7	West Coast Vancouver Island South	**Tofino** 518F1B	**Tofino** WX1, WX2, WX3, Ch21B, 2054J3E **Victoria** WX3
8	Juan de Fuca Strait	**Tofino** 518F1B	**Tofino** WX1, WX2, WX3, Ch21B, 2054J3E **Victoria** WX3, Ch21B **EC Weatheradio** continuous broadcast
9	Haro Strait	**Tofino** 518F1B	**Comox** WX1, Ch21B **Victoria** WX3, Ch21B **EC Weatheradio** continuous broadcast
10	Howe Sound	**Tofino** 518F1B	**Victoria** WX3, Ch21B **EC Weatheradio** continuous broadcast
11	Strait of Georgia	**Tofino** 518F1B	**Comox** WX1, WX2, Ch21B **Victoria** WX3, Ch21B **EC Weatheradio** continuous broadcast
12	Johnstone Strait	**Tofino** 518F1B	**Comox** WX1, WX2, Ch21B
13	Queen Charlotte Strait	**Prince Rupert** 518F1B **Tofino** 518F1B	**Comox** WX1, WX2, Ch21B **Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E **Tofino** WX1, WX2, WX3, 21B, 2054J3E
14 15	Central Coast Hecate Strait	**Prince Rupert** 518F1B	**Comox** WX1, WX2 **Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E **Tofino** WX1, WX2, WX3, 21B, 2054J3E
16 17	Dixon Entrance East Douglas Channel	**Prince Rupert** 518F1B	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E

Marine Weather Observations

❖ **Automated Reporting Stations**

Stations	Broadcast / Frequencies	
1. EastPoint 2. Esquimalt Harbour 3. Victoria Harbour	**EC** Weatheradio (2)	
4. South Moresby	**Comox** WX1, WX2	
5. Bonilla Island 6. Cumshewa Island 7. Grey Islet 8. Herbert Island 9. Holland Rock 10. Kindakun Rock 11. Langara Island 12. Lucy Island 13. Prince Rupert 14. Rose Spit	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E **Tofino** WX1, WX2, WX3, Ch21B, 2054J3E	
15. Cape St James 16. Cathedral Point	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E **Tofino** WX1, WX2, WX3, Ch21B, 2054J3E	**Comox** WX1, WX2
17. Sartine Island	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E **Tofino** WX1, WX2, WX3, Ch21B, 2054J3E	**Comox** WX1, WX2
18. Solander Island	**Tofino** WX1, WX2, WX3, Ch21B, 2054J3E	**Comox** WX1, WX2
19. Race Rocks 20. Sheringham Point	**Tofino** WX1, WX2, WX3, Ch21B, 2054J3E **Victoria** WX3, Ch21B	**EC** Weatheradio (2)
21. Ballenas Island 22. Entrance Island 23. Sisters Islets 24. Sandheads	**Victoria** WX3, Ch21B **Comox** WX1, Ch21B	**EC** Weatheradio (2)
25. Grief Point	**Victoria** WX3, Ch21B	**Comox** WX1, Ch21B
26. Discovery Island 27. Kelp Reef 28. Pam Rocks 29. Point Atkinson 30. Victoria/Gonzales Pt	**Victoria** WX3, Ch21B	**EC** Weatheradio (2)
31. Chrome Island 32. Merry Island 33. Saturna Island 34. Trial Island	**Victoria** WX3, Ch21B	
35. Fanny Island	**Comox** WX1, WX2, Ch21B	

❖**Local & Lighthouse Reporting Stations**

Stations	Broadcast Stations/Frequencies
1. Friday Harbour, WA 2. Point Wilson 3. Port Angeles	**EC** Weatheradio (1)
4. Cape Lazo 5. Cape Mudge	**Comox** WX1, Ch21B **EC** Weatheradio (1)
6. Grief Point (winds)	**Comox** WX1, Ch21B
7. Pulteney Point	**Comox** WX1, WX2 **Tofino** WX1, WX2, WX3, Ch21B
8. Chatham Point	**Comox** WX1, WX2 & Ch21B
9. Bonilla Island 10. Green Island 11. Langara Island 12. Triple Island	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E
13. Boat Bluff 14. Dryad Point 15. Ivory Island 16. Pine Island 17. Scarlett Point 18. Addendroke Island 19. Egg Island 20. McInnes Island	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E **Comox** WX1, WX2 **Tofino** WX1, WX2, WX3, Ch21B, 2054J3E
21. Cape Scott	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E **Comox** WX1, WX2 **Tofino** WX1, WX2, WX3, Ch21B
22. Quatsino 23. Nootka	**Tofino** WX1, WX2, WX3, Ch21B **Comox** WX1, WX2
24. Pachena Point	**Tofino** WX1, WX2, WX3, Ch21B **Victoria**WX3,Ch21B
25. Carmanah Point 26. Trial Island	**Tofino** WX1, WX2, WX3, Ch21B **EC** Weatheradio (1) **Victoria** WX3, Ch21B
27. Amphitrite Point 28. Cape Beale 29. Lennard Island	**Tofino** WX1, WX2, WX3, Ch21B **Victoria** WX3, Ch21B
30. Race Rocks	**Tofino** WX1, WX2, WX3, Ch21B, 2054J3E
31. Estevan Point	**Tofino** WX1, WX2, WX3, Ch21B, 2054J3E **Comox** WX1, WX2 **Victoria** WX3, Ch21B
32. Chrome Island 33. Entrance Island 34. Merry Island	**Victoria** WX3, Ch21B **EC** Weatheradio (1) **Comox** WX1, Ch21B
35. First Narrows 36. Jericho 37. Tsawassen	**Victoria** WX3, Ch21B **EC** Weatheradio (1)

Local weather reports are broadcast for observations taken at 0330, 0630, 0930, 1230, 1530 and 1830. **(all times PST)**

Ocean Buoy Reporting Stations

Stations	Broadcast Stations/Frequencies
1. Central Dixon Entrance 2. Middle Nomad 3. Nanakwa Shoal 4. North Hectate Strait 5. North Nomad 6. West Dixon Entrance 7. West Moresby	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E
8. South Hectate Strait 9. South Moresby	**Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E **Comox** WX1, WX2
10. East Dellwood 11. West Sea Otter	**Tofino** WX1, WX2, WX3, Ch21B, 2054J3E **Comox** WX1, WX2 **Prince Rupert** WX1, WX2, WX3, Ch21B, 2054J3E
12. South Brooks	**Tofino** WX1, WX2, WX3, Ch21B, 2054J3E **Comox** WX1, WX2
13. Sentry Shoal	**Comox** WX1, Ch21B
14. La Perouse	**Tofino** WX1, WX2, WX3, Ch21B, 2054J3E **Victoria** WX3
15. Halibut Bank	**Victoria** WX3, Ch21B **EC** Weatheradio (2) **Comox** WX1, Ch21B
16. Smith Island (U.S.) 17. Cape Flattery (U.S.)	**Victoria** WX3

Wind reports broadcast hourly from 0500-1800. Note full observations replace hourly wind reports for that hour when available from lighthouse stations. **(all times PST)**

NORTHERN CANADA

includes: Western and Eastern Arctic, Hudson Bay & Major Inland Lakes of Manitoba, Northern Saskatchewan and Northwest Territories

Marine Weather Forecast Program

The **Arctic Weather Centre**, Environment Canada, Edmonton, provides marine forecasts in support of Arctic marine activity during the summer into fall open water season. The forecast area encompasses Lake Athabasca, Great Slave Lake, the Mackenzie River (**warning service** only), the waterways of the western and high Arctic, Baffin Bay and Davis Strait, Foxe Basin, Hudson Strait and Ungava Bay, and central and western Hudson Bay. Marine weather forecasts for Eastern Hudson Bay and James Bay are done by the Quebec City Weather Office.

❖The **Prairie Storm Prediction Centre**, Environment Canada, Winnipeg, provides marine forecasts for Lake Winnipeg (north and south basins), Lake Manitoba, and Lake Winnipegosis during the open water season in support of pleasure and commercial activities. The forecast program for the Manitoba lakes continues through the winter months as a public rather than a marine forecast in aid of commercial ice fishing. Minimum and maximum temperatures along with windchill are forecast.

Marine Weather Warnings: (refer to Table 1, Marine Warning type and criteria)
Marine forecasts issued by the **Arctic Weather Centre** and the **Prairie Storm Prediction Centre** follow the internationally recognized **wind criteria** of gales (type 1), storm force (type 2) and hurricane force (type 3) winds as per Table 1. **Separate** warning messages are issued for these criteria both to initiate the warning and to end the warning. Subsequent forecasts carry status statements with respect to the criteria.

Warning types 4, 5 and 8 as per table below will be **highlighted** in the regular forecast. Warning type 6, 7 and 9 are not carried by the program although thunderstorms, when expected, will always be mentioned in the regular forecast.

	Warning Types	Warning Criteria
4	**Small craft wind warning: (Note 1)**	Sustained winds between 20 & 33 knots **inclusive**
5	**Local River Wind Warning: (Note 2)**	Winds 25 to 33 knots **inclusive**
6	**Small Craft Thunderstorm Advisory**	
7	**Waterspout advisory**	
8	**Freezing Spray**	**Salt Water** air temperatures -4C or less and winds 25 knots or more **Fresh Water** air temperatures -1C or less and winds 25 knots or more
9	**High Water level**	

Notes: (1) Applied only to the Manitoba Lakes, Lake Athabasca, and Great Slave Lake.
(2) Applied only to the Mackenzie River.

Weather and ice messages:

Weather and ice reports in the international meteorological code, made at the standard synoptic hours of 0000, 0600, 1200 and 1800 UTC are solicited from ships of all nationalities which have been recruited by their own national weather service, or other weather services, to make weather and ice reports on a regular basis. These reports should be made and transmitted to the nearest Marine Communications and Traffic Services Centre, irrespective of the ship's position. Reports made close to, or even within sight of land, are as important as reports made offshore, due to the greater variability of weather conditions in proximity to a coastline. Such reports 'contribute' to our knowledge of Arctic weather from both a real-time operational perspective and from a climate perspective.

The **Prairie Storm Prediction Centre** also welcomes weather, sea, and ice observations from the lakes. Real-time observations, and those up to a few hours after the event, are most valuable. Pass observations to 1-800-66STORM (1-800-667-8676).

❖ **Facsimile package available**

Analyses and prognostics - Weather analysis and weather prognostic charts covering Arctic and Hudson Bay waters are prepared at the Arctic Weather Centre. Selected charts are transmitted on facsimile by MCTS Iqaluit and MCTS Inuvik. Please note the MCTS Centres access these charts from a web site at the Canadian Ice Service (CIS). Arctic Weather prepared charts are available directly from the CIS Web site: http://www.cis.ec.gc.ca

❖ **Buoys - open water season**

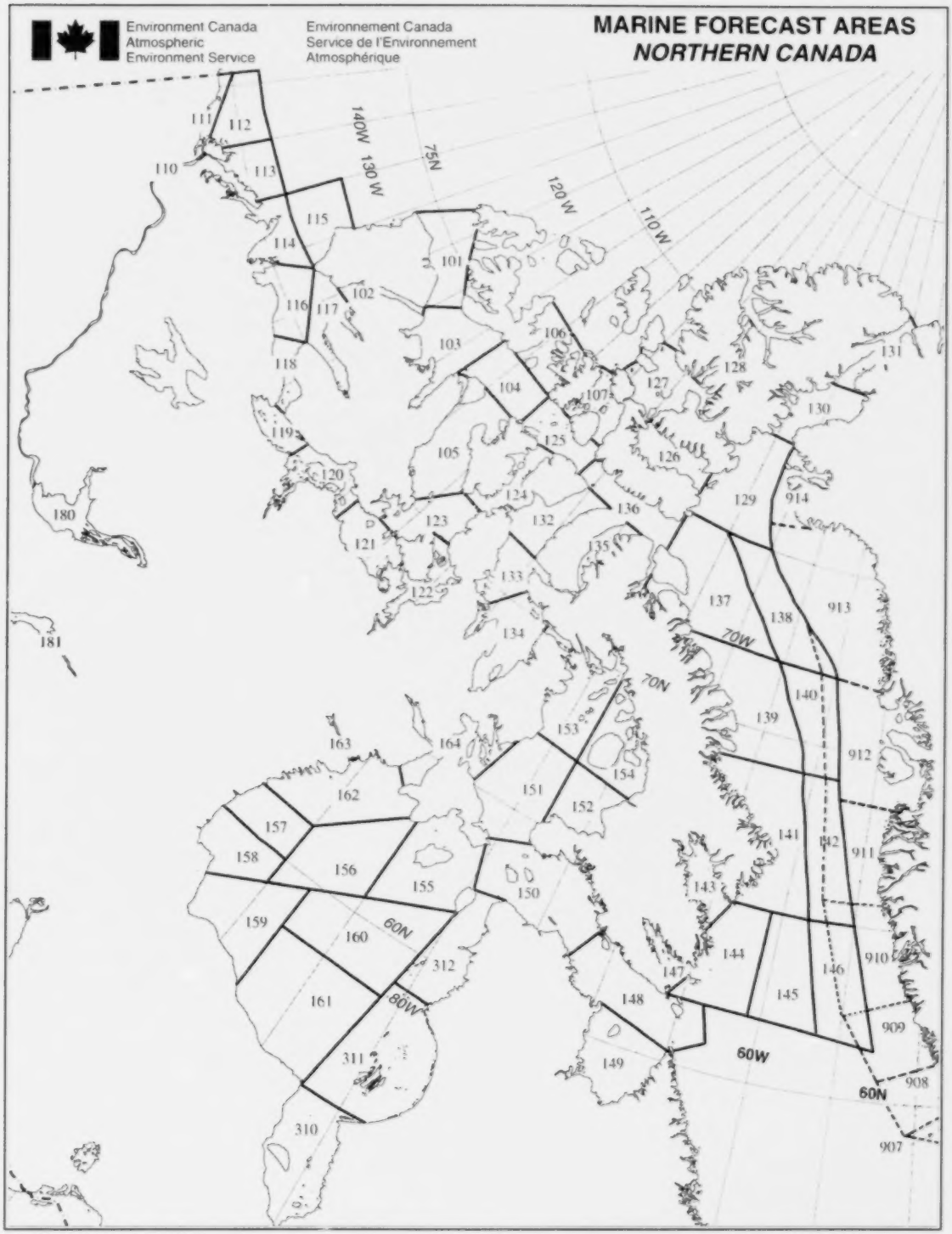
WMO #	Location / Information	LAT	LONG
45140	Lake Winnipeg South Basin (moored buoy)	50 48 N	96 44 W
45141	Great Slave (moored buoy - 25 nm northeast of Hay River)	61 11 N	115 19 W
45144	Lake Winnipeg North Basin (moored buoy)	53 15 N	98 15 W
45145	Lake Winnipeg between North and South Basins	51 24 N	96 42 W
45150	Great Slave (moored buoy - immediate west of Inner Whaleback Rocks)	61 55 N	113 45 W

The Great Slave Lake buoys are deployed in early July and retrieved in late September or early October. The buoys provide hourly wind and temperatures data including surface water temperature and wave data.
The Lake Winnipeg South Basin buoy is deployed annually May or June, and retrieved in October. The buoy provides hourly wind and temperature data including surface water temperature data.

Weatheradio Canada

Stations	CALL SIGN	Frequency (MHz)	Power	Location
Inuvik	**VBU996**	162.400	53.7 Watts ERP	Hidden Lake
Yellowknife	**VBC200**	162.400	150 Watts ERP	Yellowknife Seismic Station
Winnipeg	**XLM538**	162.550		
Riverton	**XLF471**	162.400		
Long Point	**VCI386**	162.550		

Inuvik and Yellowknife have seasonal program from June 01st to October 15th
Winnipeg, **Riverton** and **Long Point** provide **continuous** broadcast of marine weather forecasts and warnings for the Manitoba Lakes, and of marine weather observations when available.


Environment Canada
Atmospheric
Environment Service
Environnement Canada
Service de l'Environnement
Atmosphérique
MARINE FORECAST AREAS
NORTHERN CANADA
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130 W
75N
120 W
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60N
80W
60W
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Marine Forecasts Eastern and Western Arctic Waters

All broadcast from MCTS Centres except for Environment Canada Weather Radio or private stations.

Number	Area Name	Availability Period	Radiotelephony - All Times UTC
101	McClure	Shipping season	**Inuvik**: on request
102	Prince of Wales		
103	Melville	Shipping season	**Iqaluit**: on request
104	Rae		
105	McClintock		
106	Byam		
107	Queens		
110	Mackenzie River **(1)**	June 15 – October 15	**Inuvik**: 0115 **(1)**
111	Yukon Coast	July 01 – September 15	**Inuvik**: 1435, **Inuvik** Weather Radio
112	Mackenzie	July 01 – September 30	
113	Tuktoyaktuk		
114	Baillie	July 15 – September 30	**Inuvik**: 1435
115	Banks	Shipping season	**Inuvik:** on request
116	Amundsen	July 15 – September 30	**Inuvik**: 1435
117	Holman	Shipping season	**Inuvik:** on request
118	Dolphin	July 15 – September 30	**Inuvik**: 1435
119	Coronation		
120	Dease		
121	Maud	Shipping season	
122	St. Rock	Shipping season	**Inuvik or Iqaluit:** on request
123	Larsen		
124	Peel		
125	Barrow	July 01 – October 31	**Iqaluit**: 1240 & 2310
126	Jones	Shipping season	**Iqaluit**: on request
127	Norwegian Bay		
128	Eureka		
129	Clarence		
130	Kane		
131	Robeson		
132	Regent		
133	Boothia		
134	Committee		
135	Admiralty	Shipping season	**Iqaluit**: 1240 & 2310
136	Lancaster	July 01 - October 31	

(1) Marine forecasts are not regularly issued for the Mackenzie River. Rather, weather charts are monitored for the potential of wind events of 25 knots or more including such winds from thundershowers. When winds of 25 knots or more are expected anywhere along the Mackenzie River, a **Local River Warning** is issued for that section of the river and a forecast for that section of the river is appended to the Great Slave Lake marine forecast for as long as the wind criteria of 25 knots or more is being met.

❖NAVTEX and Marine Forecasts Eastern Arctic and Hudson Bay Waters

All broadcast from MCTS Centres except for Environment Canada Weather Radio or private stations.

Number	Area Name	Availability Period	NAVTEX	Radiotelephony
137	Baffin West	July 01 - Oct. 31		**Iqaluit**: 1240 & 2310, 1340 & 2235 on request
138	Baffin East	July-August		
139	Clyde West	July 01 - Oct. 31	**Iqaluit:** (E) 0320, 0720, 1520, 1920 (F) 0310, 0710, 1510, 1910	**Iqaluit**: 1340 & 2235
140	Clyde East	July-August		
141	Davis West	July 01 - Oct. 31		
142	Davis East			
143	Cumberland	July 01 - Oct. 31		**Iqaluit**: 1340 & 2235 on request
144	Brevoort West	July 01 - Oct. 31	**Iqaluit:** (E) 0320, 0720, 1520, 1920 (F) 0310, 0710, 1510, 1910	**Iqaluit**: 1340 & 2235
145	Brevoort Central			
146	Brevoort East			
147	Frobisher Bay			
148	Resolution			
149	Ungava			
150	Nottingham	July 01 - Oct. 31		**Iqaluit**: 0110, 1320, 1340, 2235 on request
151	Foxe West	Shipping season		**Iqaluit**: 0110 & 1320 on request
152	Foxe East			
153	Igloolik			
154	Prince Charles			
155	Coats	Shipping season		**Iqaluit**: 0110 & 1320
156	Central	Shipping season		
157	Arviat	July 01 - Oct. 15		**Thunder Bay** (Churchill): 0040 & 1410
158	Churchill			**Thunder Bay** (Churchill): 0040 & 1410
159	York	Shipping season		**Iqaluit**: 0110 & 1320 on request
160	South Central Hudson			
161	South Hudson			
162	Rankin	July 01 - Oct. 15		**Iqaluit**: 0110 & 1320 **Thunder Bay** (Churchill): 0040 & 1410
163	Baker	July 01 - Sept. 30		**Iqaluit**: 0110 & 1320 on request **Thunder Bay** (Churchill): 0040 & 1410
164	Roes Welcome	Shipping season		
310	James Bay	Navigation season		
311	Belcher	Navigation season		**Iqaluit**: 0110 & 1320
312	Povungnituk			

Note: MCTS Iqaluit issues French NAVTEX broadcasts on 490 kHz and English NAVTEX broadcasts on 518 kHz.

Other Marine Forecasts for Baffin Bay Waters

Number	Area Name	Availability Period	Available via:
907	Nunap Isuata Kitaa	Year round	Danish Meteorological Institute, Copenhagen at tel: (45) 39 15 7500
908	Nuuarsuit		
909	Narsalik		
910	Mcqquitsoq		
911	Attu		
912	Uiffaq		
913	Qimusseriarsuaq		
914	Kiatak		

❖Marine Forecasts for Major Inland lakes, Western & Central Canada

All broadcast from MCTS Centres except for Environment Canada Weather Radio or private stations.

Number	Area Name	Availability Period	Radiotelephony
180	Great Slave Lake **(See note 1, Eastern & Western Arctic waters)**	June 15 - October 31	**MCTS Inuvik** 0115 **Yellowknife** Weather Radio
181	Lake Athabasca	Open water season	
183	Lake Winnipeg South Basin	May 15 – October 31	**MCTS Thunder Bay**: 0030, 1000, 1130, 1330, 1730, 2230 **Winnipeg, Riverton & Long Point** Weatheradio
184	Lake Winnipeg North Basin		

Marine Weather Observations - Western Arctic and Great Slave Waters

	Weather Reports (See note 2) for:	Broadcast Stations
1.	Inuvik	**Inuvik** Weatheradio 0500 to 2300 Local Standard Time
2.	Sachs Harbour	
3.	Tuktoyaktuk	
4.	Aklavik	
5.	Fort MacPherson	
6.	Norman Wells	
7.	Yellowknife	**Yellowknife** Weatheradio 0500 to 2300 Local Standard Time
8.	Hay River	
9.	Fort Reliance	
10.	Fort Resolution	
11.	Inner Whale Back Island automatic station	
12.	Great Slave Lake Seasonal Buoy 45141 and 45150	
13.	Lake Winnipeg Seasonal Bouys 45140 (South Basin) and 45144 (North Basin)	**Winnipeg, Riverton & Long Point** Weatheradio
14.	Lake Winnipeg: Gimli Grand Rapids George Island Norway House Berens River Victoria Beach	**MCTS Thunder Bay** Ch26, Ch19 at 0030, 1000, 1130, 1330, 1730, 2230

(2) Only if available. Full weather broadcasts from staffed stations. Temperature and winds from automatic stations and buoys.

CANADIAN ICE SERVICE (CIS)

Marine Ice Forecast Program

Compared to marine weather programs, time scales for ice forecasts are relatively longer. Useful time scales for ice forecast are weekly, monthly and seasonal. At present, the program provides 30 day ice forecast (text) mainly as a planning tool for operators. Specific forecasts for specific areas and specific time scales may be available through requests but they will be cost recovered.

As part of its support to Canadian Coast Guard and shipping, CIS does produce NAVTEX bulletins. These are created on a daily basis for the southern waters (Newfoundland, Gulf of St. Lawrence and the Great Lakes) and are sent to Coast Guard MCTS Centres where they are broadcast. The bulletin depicts the current ice edge and the ice conditions for the specific areas as well as ice warnings when issued.

Marine Ice Warnings Program

Ice hazard bulletins are produced daily. The intent is to advise users of any ice warning conditions that are in effect or that could develop within the next 24 hours. The bulletins also provide a point by point description of the ice edge.

Ice Warning Criteria

	Arctic Areas (includes Hudson Bay)	Southern Waters
1.	Strong ice pressure	Strong ice pressure
2.	Rapid closing of coastal leads	Rapid closing of coastal leads
3.	Any amount of old ice greater than a trace when not normally expected in active shipping areas.	Any amount of old ice greater than a trace
4.	Jamming or blocking of ports	When ice intrudes into areas not normally affected by ice during the season or at times when ice is not normally expected
5.	Unexpected presence of old or thick first year ice	

Ice Reports, Ice Observations

Ice reports from ships or other airborne platform are normally handled through MCTS Centres who make them available for broadcast. These reports are all assimilated in the daily ice charts produced by CIS.

Ice Charts Available

Current ice conditions charts are also produced on a daily basis. The area covered by the chart is season dependent and the charts are normally broadcast at times specified in a table listed in this section.

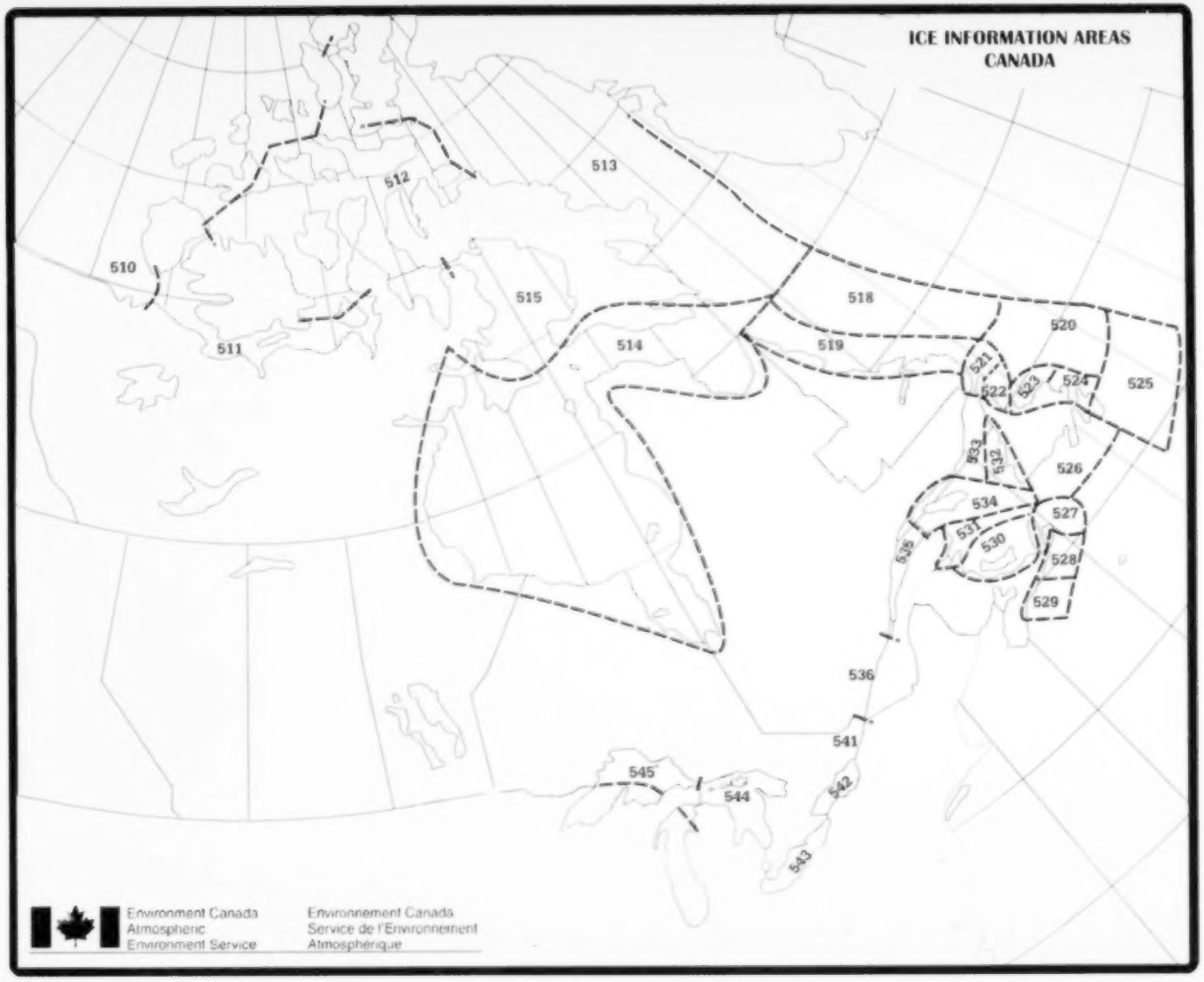
Once a week, CIS produces composite ice charts. These charts intend to be used as a planning tool rather than a tactical support tool and can be made available to users through commercial communication lines. They are not broadcast through Coast Guard MCTS Centres.

Ice Beacons

In order to better track the ice drift or to verify ice models, CIS deploys between 4 to 8 ice beacons (locators) yearly. These devices do drift with the ice and are relatively small, so they are very hard to detect from a ship platform. The deployment is done in the Beaufort sea polar pack (1 beacon), in Baffin Bay (1 to 3 beacons), off the East Coast of Labrador or Newfoundland (1 to 3) and in the Gulf of St. Lawrence (2 to 4).

Weatheradio Canada

Ice bulletins are not directly put on Weatheradio. Rather, the regions do capture the ice bulletins from the Environment Canada communication network and check if there is an ice warning in effect. If there is one, the warning will normally be added to the regular marine synopsis which is normally broadcast via the Weatheradio network.


ICE INFORMATION AREAS
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Environment Canada
Atmospheric
Environment Service
Environnement Canada
Service de l'Environnement
Atmosphérique

Ice Bulletins - Seasonal products unless noted. All broadcast from MCTS Centres

Area	Name		NAVTEX	Other Ice Bulletins or Reports
510	Beaufort Sea	**S**	n/a	**Inuvik** - Ice information on request
511	Western Arctic waterway		n/a	
512	Eastern Arctic routes	**S**	n/a	**Iqaluit**: 1705 (W)
513	Baffin Bay /Davis Strait			
514	En Route to Churchill			
515	Foxe	**S**	n/a	**Iqaluit** - Ice information on request
518	Outer Labrador coast		**Labrador**: 2350	**Iqaluit**: 1705 (W)
519	Labrador coast		**Labrador**: 2350	**Iqaluit**: 1705 (W) **St. Anthony**: 0107, 0907, 1807, CMB - (W, L) **Labrador**: 0137, 1007, 1437, 2037, CMB (W)
520	Outer East Newfoundland Waters	**W**	**St. John's**: 1820, Limit of all known ice at 2220Z	**St. Anthony**: 0107, 0907, 1807, CMB - (W, L)
521	Strait of Belle Isle and Approaches (2)		**St. John's**: 1820, Limit of all known ice at 2220Z	**St. Anthony**: 0107, 0907, 1907, CMB - (W, L) **St. John's**: 0007, 0837, 1637, 2207, CMB (W)
522	Northern Peninsula	**W**		
523	Coastal route north of Cape Freels to Botwood	**W**		
524	Coastal route south of Cape Freels	**W**	**St. John's**: 1820, Limit of all known ice at 2220Z	**St. Anthony**: 0107, 0907, 1907, CMB - (W, L) **Placentia**: 0737, 2137, CMB (W) **St. John's**: 0007, 0837, 1637, 2207, CMB (W)
525	Approaches to St John's	**W**		
526	South Coast	**W**	**St. John's**: 1820, Limit of all known ice at 2220Z.	**Port aux Basques (B):** 0807, 1837, CMB (W) **Placentia**: 0737, 2137, CMB (W)
527	Approaches to Sydney	**W**	**Sydney**: 2240 (E), 2255 (F)	**Sydney** CMB - Shipping route ice conditions **Port aux Basques (B):** 0807, 1837, CMB (W)
528	Approaches to Chedabucto Bay	**W**	**Sydney**: 2240 (E), 2255 (F)	**Sydney** CMB - Shipping route ice conditions
529	Eastern shores	**W**	**Sydney**: 2240 (E), 2255 (F)	
530	Northumberland Strait and New Brunswick coast	**W**	n/a	**Sydney** CMB - (W)
531	Chaleurs Bay & Approaches	**W**	**Sydney**: 2240 (E), 2255 (F) **Rivière-au-Renard** 1620, *2020* (E)(1) 1635, ***2035*** (F)(1)	**Sydney** CMB - Shipping route ice conditions **Rivière-au-Renard (B):** 0937, 1737, CMB Ice reports
532	Enroute to Bay of Islands	**W**	n/a	**Port aux Basques (B):** 0807, 1837, CMB (W)
533	Northeast Gulf	**W**		
534	Approaches to St Lawrence river ports	**W**	**Sydney**: 2240 (E), 2255 (F) **Rivière-au-Renard** 1620, *2020* (E)(1) 1635, ***2035*** (F)(1)	**Sydney** CMB - Shipping route ice conditions **Rivière-au-Renard (B):** 0937, 1737, CMB Ice reports
535	Les Escoumins to 66W	**W**	n/a	**Rivière-au-Renard (B):** 0937, 1737, CMB. Ice reports **Quebec** CMB - Ice conditions **Les Escoumins** on CMB
536	Montréal to Trois-Rivières	**W**	n/a	**Montréal** CMB - Ice conditions
	Trois-Rivières to Les Escoumins			**Quebec** CMB - Ice conditions **Les Escoumins** on CMB
541	St Lawrence Seaway	**W**	n/a	**Montréal** CMB - Ice conditions

Area	Name		NAVTEX	Other Ice Bulletins or Reports
542	Lake Ontario	W	**Prescott**: 0110, 1310	**Prescott** CMB West and East - Ice hazard bulletin, Ice reports
543	Lake Erie east of 80 20W Lake Erie west of 80 20W incl L. St Clair	W	Same as for area 542 n/a	Same as for area 542 **Sarnia** CMB North and South - Ice hazard bulletin, Ice reports
544	Lake Huron & Georgian Bay	W W	**Thunder Bay**: 0630, 1830 **Prescott:** 0110, 1310	**Sarnia** CMB North and South - Ice hazard bulletin, Ice reports **Thunder Bay** CMB East - Ice hazard bulletin, Ice reports
545	Lake Superior & Whitefish Bay	W	Same as for area 544	**Thunder Bay** CMB West - Ice hazard bulletin, Ice reports

(E): English **(F):** French **(B):** Both English and French **S:** Summer **W:** Winter
(W): Ice warnings and conditions **(L):** Limit of icebergs
(1) Recommended route ice conditions during ice season only

❖ Ice Charts

Following is a list of the ice charts available for broadcast (note: MCTS Sydney broadcasts are on a trial basis). The charts are produced as support to Canadian Coast Guard operations and their production depends on **request from CCG.** All charts **available** can be transmitted or re-transmitted on request.

Number	Ice Chart Name (3)	Season	Broadcast site	Time (UTC)
1	Bering Strait	S	MCTS Inuvik	0200, 1630
2	Alaskan Coast	S	MCTS Inuvik	0200, 1630
3	Amundsen Gulf	S	MCTS Inuvik	0200, 1630
4	Queen Maud	S	MCTS Iqaluit MCTS Inuvik	0010, 0700 0200, 1630
5	Foxe Basin	S	MCTS Iqaluit	0500, 2125
6	Northern Hudson Bay	S	MCTS Iqaluit	0500, 2125
7	Hudson Strait	S	MCTS Iqaluit	0500, 2125
8	Southern Hudson Bay	S	MCTS Iqaluit	0500, 2125
9	Baffin Bay	S	MCTS Iqaluit	0010, 0500, 0700, 2125
10	Davis Strait	S	MCTS Iqaluit	0500, 2125
11	Approaches to Resolute	S	MCTS Iqaluit	0010, 0700
12	Byam Resolute	S	MCTS Iqaluit	0010, 0700
13	Parry Channel	S	MCTS Iqaluit	0010, 0700
14	Labrador Coast	W	CFH	0001
		S	MCTS Iqaluit	0500, 2125
15	East Newfoundland Waters	W	CFH	2222
			MCTS Sydney	2331,1142
16	SE Newfoundland Waters	W	CFH	2222
			MCTS Sydney	2331,1142
17	Gulf of St Lawrence	W	CFH	2301
			MCTS Sydney	2200, 1121
18	Cabot Strait	W	CFH	2301
19	NE Newfoundland Waters	W	CFH	2222
20	Mc'Clure Strait	S	MCTS Iqaluit	0010, 0700
21	Eureka	S		
22	Iceberg limit	W	MCTS Sydney	1741

For correct reception of this broadcast on WMO standard facsimile recorders requiring 2300Hz for White and 1500 Hz for Black, 1800 Hz centre frequency, radio receivers should be tuned in the **UPPER SIDEBAND MODE** or **USB**: add **1.6 to 1.8** to the indicated frequencies.

Atlantic Fleet Broadcasts (CFH): Broadcasts Intended for North Atlantic waters North of 35N and West of 35W. Facsimile transmission commences with a 30 second break followed by a 30 second signal.

❖

Name	Call Sign	Modulation:	Index of Cooperation	Power	Frequencies (kHz)	Drum speed
MCTS Iqaluit	VFF	J3C (FM)	576	5 KW	3251.1, 7708.1 **(USB)**	120 RPM
MCTS Inuvik	VFA	J3C (FM)	576	1 KW	8456.0, 8457.8 **(USB)**	120 RPM
Halifax	CFH			6 KW	4271, 6496.4, 10536, 13510	120 RPM
				10 KW	122.5 **mHz**	
MCTS Sydney	VCO	J3C (FM)	576	5 KW	4416, 6915.1	120 RPM

Facsimile Broadcast

(1) Airborne Facsimile Transmissions of observed ice conditions from ice reconnaissance aircraft schedule as follows on days flights are flown (as soon as possible after airborne):

Region	Season	Time (UTC)	Frequency (kHz) (b)
Gulf of St Lawrence East Newfoundland waters	Winter	H + 00 to H + 29	7708.1 kHz **USB**
Eastern Arctic	Summer	H + 00 to H + 29	6915.1 kHz **USB**
Western Arctic		H + 00 to H + 19	6915.1 kHz **USB** or 4616.0 kHz **USB**

(2) Canadian Coast Guard Ice Breakers:

UNIT (a)	Time (UTC)	Frequency (b)	UNIT (a)	Time (UTC)	Frequency (b)
CG UNIT 1	1630-1649	14770.0 **	CG UNIT 6	1810-1829	14770.0 **
CG UNIT 2	1650-1709		CG UNIT 7	1830-1849	
CG UNIT 3	1710-1729		CG UNIT 8	1850-1909	
CG UNIT 4	1730-1749		CG UNIT 9	1910-1929	
CG UNIT 5	1750-1809		CG UNIT 10	1930-1949	

(a) Specific Coast Guard and aerial reconnaissance **units** will be designated by operational orders as appropriate.

(b) Frequencies are **primary** frequencies. The following alternate frequencies **(kHZ USB)** assigned to AES/MOT for Radio Facsimile Communications may be used as appropriate for

1) Unscheduled broadcasts to Canadian Ice Service.
2) Unscheduled aircraft tactical support.
3) Intership tactical support or when necessary due to prevailing HF propagation conditions:

3251.1, 4616.0, 6915.1 (Winter only)
8113.1, 10155.1, 10169.1, 12055.1, 13440.0, 14440.0, 15642.1, 17443.1, 18168.1, 20168.1, 20530.1.
For correct reception of these broadcasts on WMO standard facsimile recorders requiring 2300 Hz for black and 1500 Hz for white, radio receivers should be tuned in the upper sideband mode to the frequencies listed.

Control signals:
(a) Start signal - 300Hz for 5 seconds
(b) Phasing signal Black frequency signal interrupted by a white frequency pulse, one per drum rotation for 60 seconds.
(c) Stop signal 450Hz for 5 seconds.

Frequency Shift: Black 2300Hz White 1500Hz

Drum speed: 120 RPM

Environment Canada Atmospheric | Environnement Canada Service de

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Make us aware of your comments regarding the Environment Canada Marine Weather and Ice

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CIS, 3rd floor/étage
373 Sussex,
Ottawa, Ontario
Canada
K1A 0H3
Fax: 613-943-5748

E-Mail/courriel:
Normand.Michaud@ec.gc.ca

PART 6

LORAN-C NAVIGATION SYSTEM

❖TABLES

1 GULF OF ALASKA LORAN-C CHAIN GRI 7960
2 CANADIAN WEST COAST LORAN-C CHAIN GRI 5990
3 U.S. WEST COAST LORAN-C CHAIN GRI 9940
4 NORTH CENTRAL U.S. LORAN-C CHAIN GRI 8290.

FIGURES

1 NORTH AMERICAN COVERAGE OF LORAN-C CHAINS
2 LORAN-C COVERAGE DIAGRAM – GRI 5990
3 CANADIAN WEST COAST CHAIN COVERAGE DIAGRAM
4 INDEX AND CHARTLETS SHOWING ADDITIONAL SECONDARY FACTOR CORRECTIONS

A. Loran-C Chain Coverage

Figure 1 shows the North American coverage of Loran-C while Figure 2 shows further details of the Canadian West Coast and suggested rates and master-secondary pairs to use in particular areas. Figure 3 shows the individual coverage pattern provided by the Canadian West Coast Chain. The following notes pertain to Figure 2:

Note 1: The dividing lines between the Loran-C rates do not necessarily mean there are no other suitable Loran-C station pairs which could be used to safely navigate in an area. For example, while it is recommended to use 5990 XZ (i.e., Williams Lake - Shoal Cove - Port Hardy on Rate 5990) in the Hecate Strait area, coverage also exists there for 5990 XY. It is simply estimated that 5990 XZ provides better coverage in this area.

Note 2: The position repeatability of the 5990 XZ signals in this area may degrade to 1/3 nm due to geometric considerations. Theoretically 7960 XZ should be used in this area, but this is not recommended due to weak signal strength of the distant master station at Tok, Alaska.

B. Chain Details

Tables 1 through 4 give technical details of chains that provide coverage in waters off Western Canada and proximity.

❖C. Loran-C Coordinate Converters

Listing of vectors from the Loran-C coordinate converter position to the true position.

D. Loran-C Receiver Latitude/Longitude Corrections

Today's Loran-C receivers are equipped with microprocessors which are designed to internally compute the latitude and longitude coordinates of the receiver, based on the Time Difference (TD) readings, and directly display these values. This reduces the need to possess Loran-C charts, though it is still recommended they be procured.

The latitude/longitude computation may be based upon a pure seawater path. This leads to errors if the Loran-C signals from the various stations involve appreciable overland paths since the speed of the signal will decrease by varying amounts, depending on the nature of the earth's surface over which it is passing. Loran-C operates by measuring the difference in arrival times of the signals from the different stations in the Loran-C chain, and thus any unforseen variation in the speed of a signal will result in an error in the latitude/longitude reading. Note that when the receiver is being used in the time difference mode (time difference readings being used to manually plot lines of position on a Loran-C chart), these errors are minimal and the system should be accurate to within 1/4 nautical mile. This is because the Loran-C lattice on a nautical chart has already been adjusted to allow for the signal variation as it travels over land.

It is recommended that mariners using the latitude/longitude feature of their receiver check the manufacturer's operating manual to determine if corrections are necessary and how they may be applied to compensate for overland paths in order to obtain a greater fix accuracy. The correction can be applied in either of two forms: (i) insertion of a correction when the vessel is at a known location, or (ii) the insertion of a correction factor that is determined from a table or chartlet. The latter is called an Additional Secondary Phase Factor (ASF) correction, and the chartlets in Figure 4 can be used to ascertain the numeric value to apply. These corrections will normally be valid only within 50 to 100 miles of the location at which the correction was inserted because of the changing effects of land mass on the Loran signals in the different areas.

E. Cautionary Note - Fishing Near the B.C.- Alaska Coastal Boundary

Canadian fishermen using the Loran-C system for navigation must exercise caution when operating the near "A-B" Line, the coastal boundary in the waters separating B.C., and Alaska.

You should be particularly aware of the signal phase problem discussed in Section D. A receiver being used in the latitude/longitude mode can experience errors of up to several miles if ASF corrections have not been applied. In some receivers the corrections are applied automatically within the receiver, while in others the corrections must be applied manually, be it while located at a known spot or by the addition of ASF corrections.

Note that some of the ASF corrections shown in this publication stop short of the A-B line, and caution must be exercised when operating in this area.

F. Waypoint Navigation Cautionary Note

Mariners are cautioned that an error can exist between the waypoint navigation information provided by their Loran-C receiver and the desired straight-line track plotted on a chart. A straight line course plotted between two waypoints on a mercator chart is a rhumb line, defined as a line on the earth's surface cutting the meridians of longitude at the same angle. The course and distances displayed by a microprocessor-based Loran-C receiver, used in the waypoint mode, are normally computed for a great circle track, not a rhumb line. In the northern hemisphere, a great circle track between two waypoints lies to the north of a rhumb line joining those same waypoints.

This offset distance, or error, is a maximum when sailing East-West at a latitude of approximately 45 degrees, decreasing to zero at the equator and at the North and South Poles. It also decreases to zero as your track becomes North-South, regardless of the latitude. As an example of the offset error possible, a journey from St. John's, Newfoundland, to the Lands End area, England, a distance of roughly1850 nm, would have a maximum offset of approximately 140 nm when comparing a rhumb line and a great circle track between the two places. The rhumb line versus great circle path offset becomes a danger only if the navigator has not laid off a great circle course on a Gnomonic chart, ensuring the vessel will pass clear of all navigational dangers.

G. LORAN-C System Status Information

Up-to-date Loran-C status information is available by telephoning:

❖Loran-C Chain/Rate	Phone Number	
WEST COAST U.S./9940	(510) 437-3232*	
CANADIAN WEST COAST/5990	(709) 454-3129	Control/Monitor for Canadian Loran C Operations
GULF OF ALASKA/7960	(510) 437-3232*	
NORTH CENTRAL U.S./8290	(510) 437-3232*	

* This service is available only between the hours of 0700-1530 Pacific time on normal work days.

H. Loran-C NOTSHIPs

Loran-C Notices to Shipping (NOTSHIPS) concerning the status of Loran-C signals in the coastal waters off Western Canada and the immediate proximity are broadcast from the following Marine Communications and Traffic Services Centres (MCTS):

Vancouver	Comox
Victoria	Alert Bay
Tofino	Prince Rupert

Note that these broadcasts may only be made from those MCTS Centres located in the general area where the Loran-C signal normally exists.

TABLE 1

GULF OF ALASKA LORAN-C CHAIN GRI 7960

Station	Latitude Longitude (2)	Station Functions	Emission Delay	Theoretical Baseline Travel Time (3)	Radiated Peak Power
Tok, Alaska (1)	63 19 42.88N 142 48 31.35W	Master	—	—	560 kW
Kodiak, Alaska (1)	57 26 20.30N 152 22 10.71W	X Secondary	13804.45 m s	2804.45 m s	400 kW
Shoal Cove, Alaska (1)	55 26 20.94N 131 15 19.09W	Y Secondary	29651.14 m s	3651.14 m s	560 kW
Port Clarence, Alaska (1)	65 14 40.37N 166 53 12.00W	Z Secondary	47932.52 m s	2932.52 m s	1000 kW

(1) This station operated by United States of America.
(2) Based on WGS 84 Datum (Coordinate system for charting).
(3) Theoretical Baseline Travel Time is based on all-seawater transmission path between master and secondary based on WGS 84 Datum (Coordinate system for charting).

TABLE 2

CANADIAN WEST COAST LORAN-C CHAIN GRI 5990

Station	Latitude Longitude (2)	Station Functions	Emission Delay	Theoretical Baseline Travel Time (3)	Radiated Peak Power
Williams Lake, B.C.	51 57 58.88N 122 22 01.69W	Master	—		400 kW
Shoal Cove, Alaska (1)	55 26 20.94N 131 15 19.09W	X Secondary	13343.60 m s	2343.60 m s	560 kW
George, Washington (1)	47 03 48.10N 119 44 38.98W	Y Secondary	28927.36 m s	1927.36 m s	1400 kW
Port Hardy, B.C.	50 36 29.83N 127 21 28.49W	Z Secondary	42266.63 m s	1266.63 m s	400 kW

(1) This station operated by United States of America.
(2) Based on WGS 84 Datum (Coordinate System for charting).
(3) Theoretical Baseline Travel Time is based on all-seawater transmission path between master and secondary.

TABLE 3

U.S. WEST COAST LORAN-C CHAIN, GRI 9940

Station	Latitude Longitude (2)	Station Functions	Emission Delay	Theoretical Baseline Travel Time (3)	Radiated Peak Power
Fallon, Nevada (1)	39 33 06.74N 118 49 55.82W	Master			400 kW
George, Washington (1)	47 03 48.10N 119 44 38.98W	W Secondary	13796.90 m s	2796.90 m s	1400 kW
Middleton, Calif. (1)	38 46 57.11N 112 29 43.98W	X Secondary	28094.50 m s	1094.50 m s	400 kW
Searchlight, Nevada (1)	35 19 18.31N 114 48 16.88W	Y Secondary	41967.30 m s	1967.30 m s	560 kW

(1) This station operated by United States of America.
(2) Based on WGS 84 Datum (Coordinate system for charting).
(3) Theoretical Baseline Travel Time is based on all-seawater transmission path between master and secondary

TABLE 4

NORTH CENTRAL U.S. LORAN-C CHAIN GRI 8290

Station	Latitude Longitude (2)	Station Functions	Emission Delay	Theoretical Baseline Travel Time (3)	Radiated Peak Power
Havre, Montana (1)	48 44 38.59N 109 58 53.613W	Master	------	------	400 kW
Baudette, Minnesota (1)	48 36 49.95N 94 33 17.92W	W Secondary	14786.56 m s	3786.56 m s	800 kW
Gillette,, Wyoming (1)	44 00 11.1N 105 37 23.90W	X Secondary	29084.44 m s	2084.44 m s	400 kW
Williams Lake, B.C.	51 57 58.88N 122 22 01.69W	Y Secondary	45171.62 m s	3171.62 m s	400 kW

(1) This station operated by the United States of America.
(2) Based on WGS 84 (coordinate system for charting).
(3) Theoretical Baseline Travel Time is based on all-seawater transmission path between master and secondary.

❖Loran-C Coordinate Converters

Many of the Loran-C Coordinate Converters on the market do not compensate for the overland propagation errors caused by radio waves travelling more slowly over land than they do over seawater. These converters assume that the radio waves are travelling over an all seawater path from the transmitters to the ship. Because the amount of the time delay in each pattern varies with location, as does the width for 1 microsecond in each pattern, and the angle of cut between patterns, and which two patterns are being used for the position determination, there can be no over-all simple error statement.

It is important to note that a Loran-C coordinate converter that does not incorporate the overland propagation corrections (Additional Secondary Factor, or ASF) within its computations will produce a systematic geographic position error. This error is often in the dangerous direction; namely, it will compute a position that is farther offshore. If you are transiting along a coast, thinking that you are safely outside the dangerous shoals, you may find yourself closer to shore than you think you are.

The Canadian Hydrographic Service (CHS) has determined the overland propagation (ASF) errors through actual observations. The overland propagation corrections were incorporated into the lattices that were/are on CHS nautical charts. These maps have been published maps showing the corrections to observed Time Differences (TD's) necessary to make them theoretical TD's that can be used with algorithms using just the seawater velocity to compute the geographic position.

Manufacturers have their own methods to compute geographic positions, which may incorporate some approximations. The receivers may or may not tell the mariner which TD's it is using to compute the position – hopefully the pair with the best repeatable geometry. Some receivers use more than two TD's to compute positions.

Some manufacturers have incorporated the overland propagation corrections into their algorithms and those receivers should perform more accurately than those that do not. The industry self-imposed standard set by the Radio Technical Commission on Marine Services - Special Committee 75 on Minimum Performance Standards for Loran-C Coordinate Converters (1980) is a ¼ mile positioning accuracy.

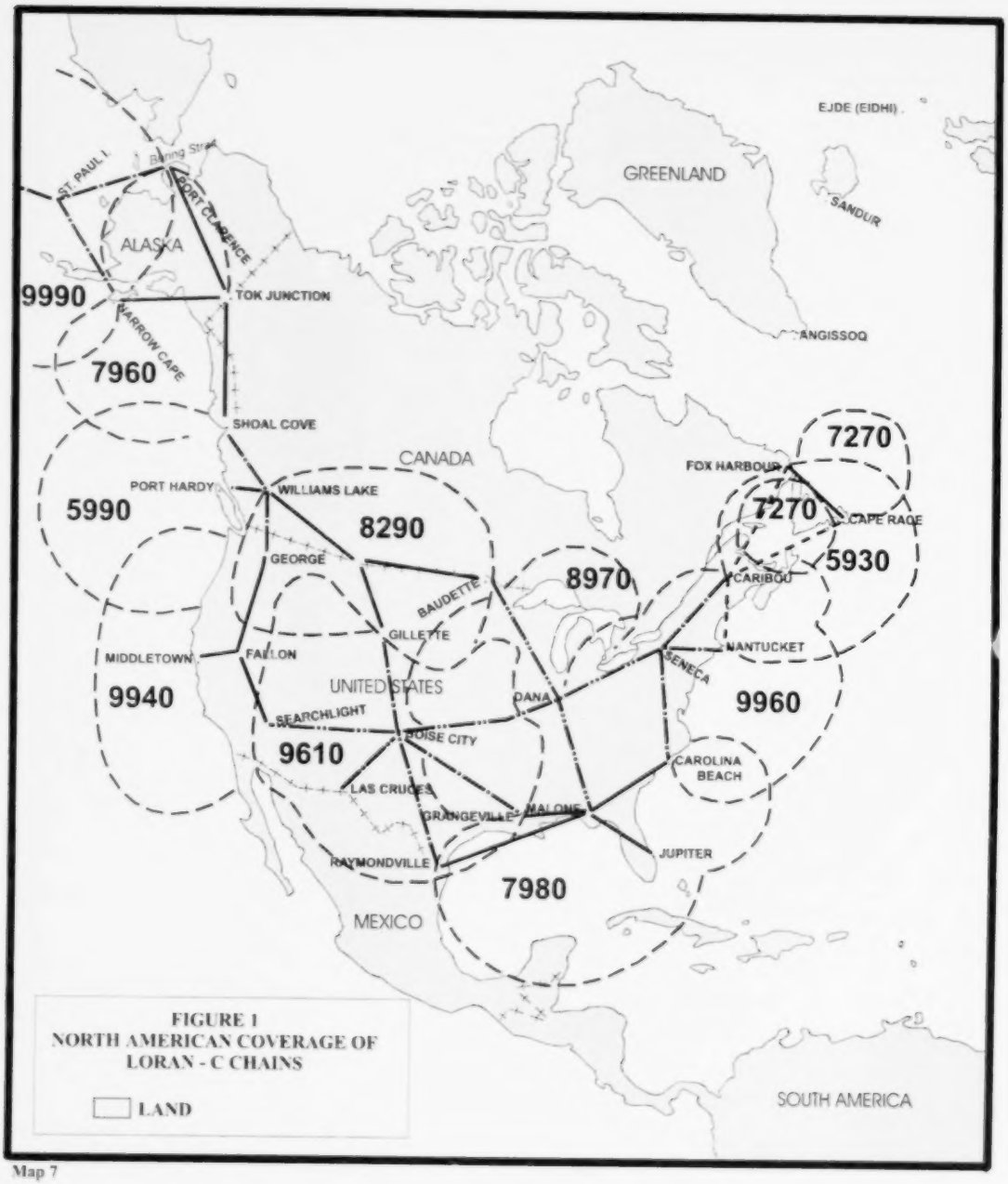
The following tables give the vectors from the Loran-C coordinate converter position to the true position. These will give some guide as to the possible errors. It is suggested, however, that mariners **NOT** correct their positions by the stated amounts, but to use the listed information as an advisory. Your coordinate converter may behave differently.

5990 – Canadian West Coast Chain

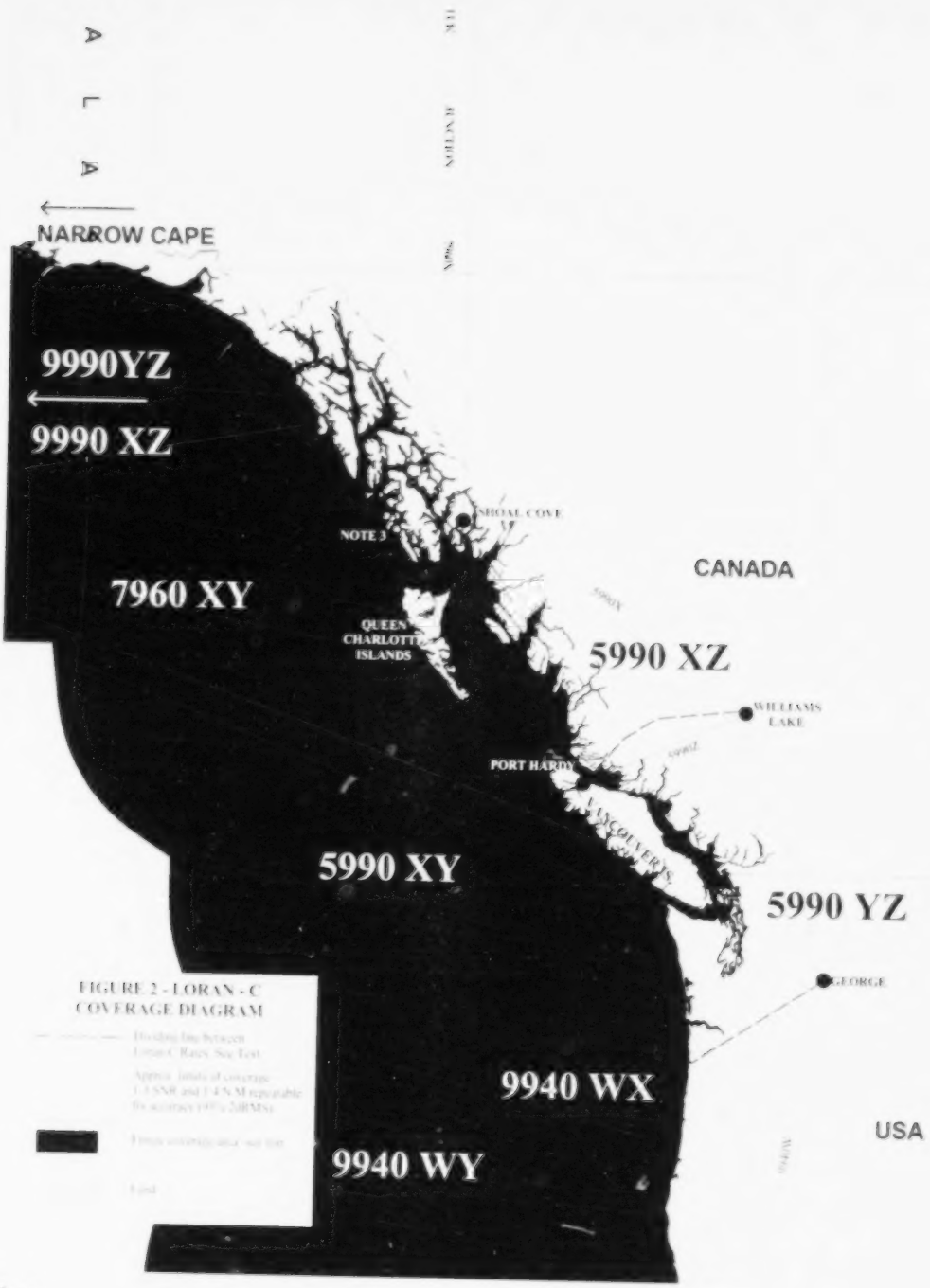
Information in **Bold** is for the TD pair that gives the best repeatability.

Vicinity of:	Latitude	Longitude	5990XY	5990XZ	5990YZ
Gulf of Georgia					
Cape Mudge	49° 55'N	125° 10'W			**0.0 nm**
Cape Lazo	49° 45'N	124° 45'W			**0.0 nm**
Sisters Islets	49° 30'N	124° 30'W			**0.0 nm**
Nanaimo	49° 15'N	123° 55'W			**0.1 nm @ 055°T**
Point Grey	49° 15'N	123° 20'W			**0.1 nm @ 080°T**
Patos Island	48° 45'N	123° 00'W			**0.1 nm @ 095°T**
Juan de Fuca Strait					
Hein Bank	48° 20'N	123° 00'W			**0.2 nm @ 225°T**
Trial Island	48° 20'N	123° 20'W			**0.2 nm @ 235°T**
Race Rocks	48° 15'N	123° 30'W			**0.1 nm @ 230°T**
Port Renfrew	48° 30'N	124° 30'W			**0.2 nm @ 015°T**
Neah Bay, Wash	48° 23'N	124° 35'W			**0.1 nm @ 035°T**
Vancouver Island, west coast					
Amphitrite Point	48° 50'N	125° 30'W	0.1 nm @ 345°T		**0.1 nm @ 045°T**
Estevan Point	49° 15'N	126° 30'W	**0.1 nm @ 090°T**		0.1 nm @ 085°T
Cape Cook	50° 00'N	128° 00'W	**0.3 nm @ 155°T**	0.7 nm @ 185°T	0.5 nm @ 115°T
Triangle Island	51° 00'N	129° 00'W	**0.6 nm @ 190°T**	0.4 nm @ 060°T	
Queen Charlotte Sound					
Pine Island	51° 00'N	127° 45'W	0.2 nm @ 175°T	**0.3 nm @ 040°T**	
Goose Group	52° 00'N	129° 00'W	0.4 nm @ 195°T	**0.4 nm @ 055°T**	
E of Kunghit I	52° 00'N	130° 30'W	0.4 nm @ 175°T	**0.5 nm @ 080°T**	
Hecate Strait					
Hecate Strait	53° 00'N	131° 00'W	0.5 nm @ 195°T	**0.7 nm @ 075°T**	
Seal Rocks	54° 00'N	131° 00'W	0.6 nm @ 190°T	**0.9 nm @ 080°T**	
Dixon Entrance					
Chatham Sound	54° 30'N	130° 35'W		**0.6 nm @ 075°T**	
Zayas Island	54° 35'N	131° 10'W		**0.8 nm @ 085°T**	
Cape Chacun	54° 40'N	132° 00'W	0.4 nm @ 120°T	**1.1 nm @ 085°T**	
Masset	54° 10'N	132° 00'W	0.7 nm @ 215°T	**1.1 nm @ 080°T**	
Forrester Island	54° 40'N	133° 30'W	0.6 nm @ 145°T	**1.2 nm @ 100°T**	

Vicinity of:	Latitude	Longitude	5990XY	5990XZ	5990YZ
Queen Charlotte Islands, west coast					
Langara Island	54° 20'N	133° 15'W	0.7 nm @ 215°T	**1.3 nm @ 095°T**	
Buck Point	53° 10'N	133° 00'W	0.6 nm @ 200°T	**0.7 nm @ 090°T**	
W of Kunghit I	52° 00'N	131° 30'W	0.4 nm @ 180°T	**0.6 nm @ 075°T**	
Offshore, near the 200 nm limit					
	46° 30'N	129° 00'W	0.7 nm @ 065°T	0.7 nm @ 060°T	**0.7 nm @ 065°T**
	49° 00'N	133° 00'W	**0.4 nm @ 130°T**		
	51° 30'N	137° 00'W	0.5 nm @ 160°T	**1.8 nm @ 075°T**	
	54° 00'N	137° 00'W		**2.1 nm @ 095°T**	


EJDE (EIDHI)
GREENLAND
SANDUR
ANGISSOQ
ST PAUL I
Bering Strait
PORT CLARENCE
ALASKA
9990
TOK JUNCTION
NARROW CAPE
7960
SHOAL COVE
CANADA
7270
FOX HARBOUR
PORT HARDY
5990
WILLIAMS LAKE
8290
7270
CAPE RACE
GEORGE
8970
5930
CARIBOU
BAUDETTE
GILLETTE
NANTUCKET
MIDDLETOWN
FALLON
SENECA
UNITED STATES
9940
DANA
9960
SEARCHLIGHT
BOISE CITY
9610
CAROLINA BEACH
LAS CRUCES
GRANGEVILLE
MALONE
JUPITER
RAYMONDVILLE
7980
MEXICO
SOUTH AMERICA
FIGURE 1
NORTH AMERICAN COVERAGE OF
LORAN - C CHAINS
LAND

Map 7


NARROW CAPE
9990YZ
9990 XZ
7960 XY
NOTE 3
SHOAL COVE
CANADA
QUEEN CHARLOTTE ISLANDS
5990 XZ
WILLIAMS LAKE
PORT HARDY
5990 XY
5990 YZ
GEORGE
9940 WX
9940 WY
USA
FIGURE 2 - LORAN - C
COVERAGE DIAGRAM

Map 8

A L A
NARROW CAPE
9990YZ
9990 XZ
7960 XY
SHOAL COVE
NOTE 3
QUEEN CHARLOTTE ISLANDS
CANADA
5990 XZ
WILLIAMS LAKE
PORT HARDY
VANCOUVER
5990 XY
5990 YZ
GEORGE
9940 WX
9940 WY
USA
FIGURE 2 - LORAN - C COVERAGE DIAGRAM
Dividing line between Loran-C Rates. See Text
Approx. limits of coverage - 1/3 SNR and 1/4 N.M repeatable 0x accuracy (95% 2dRMS)
Fringe coverage area -see text
Land

Map 8

LORAN - C - FIGURE 3
CANADIAN WEST COAST CHAIN
COVERAGE DIAGRAM
GRI 5990
140°W
130°W
120°W
60°N
50°N
X
M
Z
Y
M WILLLIAMS LAKE
X SHOAL COVE
Y GEORGE
Z PORT HARDY
APPROXIMATE LIMITS OF COVERAGE - 1:3 SNR AND 1/4 N.M. REPEATABLE FIXED ACCURACY (95% 2d RMS) WITH NOISE LEVEL AT 44dB, EXCEEDED ONLY 5% OF THE TIME.

Map 9

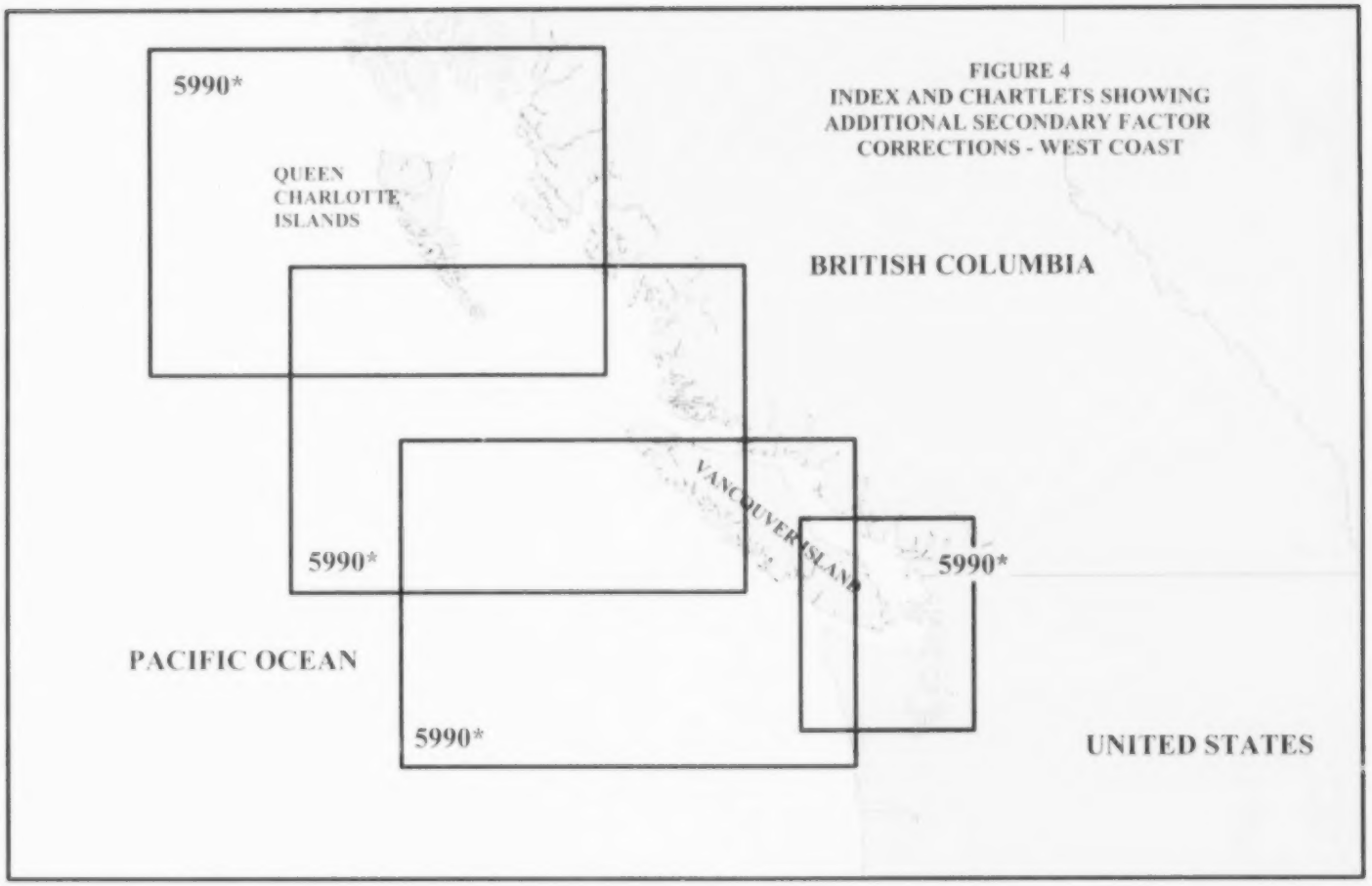


FIGURE 4
INDEX AND CHARTLETS SHOWING
ADDITIONAL SECONDARY FACTOR
CORRECTIONS - WEST COAST

Pacific
LORAN-C Navigation System Charts
Additional Secondary Factor (ASF) Correction

(Click on the area that you wish to view)

Haro Strait

Queen Charlotte Islands

Vancouver

Juan de Fuca Strait